The Wireless World

4D

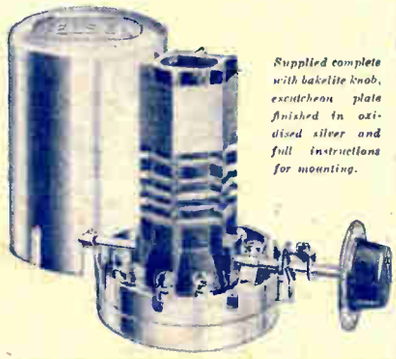
THE PRACTICAL RADIO JOURNAL

with

Complete Foreign Programmes

Friday, March 3rd, 1933.

TELSEN SCREENED TUNING COILS



Supplied complete with bakelite knob, escutcheon plate finished in oxidised silver and full instructions for mounting.

SUITABLE as aerial coils, or as anode coils, following a S.G. valve, giving selectivity comparable with a well-designed band-pass filter.

Single Screened Coil 8/6

Twin Matched Coils..... 17-

Triple Matched Coils..... 25.6

TELSEN RADIO COMPONENTS

TELSEN RADIO COMPONENTS ARE 100% BRITISH

Announcement of the TELSEN ELECTRIC Co. Ltd., Aston, BIRMINGHAM

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Sonochorde announce the most complete range of dual matched and compensated speakers available. There is a combination to suit all requirements whether for operation direct from A.C. or D.C. mains, use as a choke or for operation from battery source of supply. The "Wireless World" has selected a pair of Sonochorde Speakers for use with the Modern A.C. Quality Amplifier described in the issue of 17th February because of their outstanding performance. Write to-day for particulars of complete range.

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Distributors in Belgium—Von der Becke and Marelly, 40, Rempart Kipdorp, Antwerp, Belgium, under the trade name SONOVOX.

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HIGHEST QUALITY AT LOWER PRICE LEVELS.

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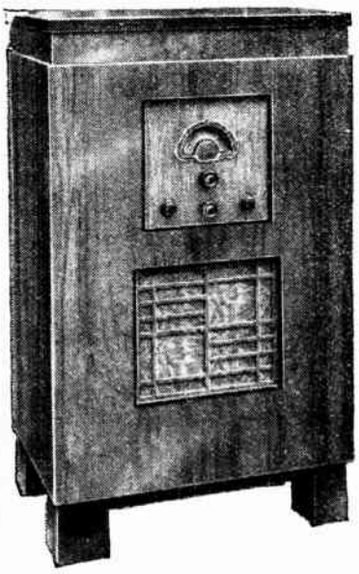
THE FAMOUS 137 MODEL IS NOW AVAILABLE IN CONSOLE FORM



PRICES:

TABLE MODEL - - - -	25 Gns.
CONSOLE - - - -	32 Gns.
RADIOGRAM - - - -	45 Gns.
RADIOGRAM with Automatic Record Changer - - -	52 Gns.

ATWATER KENT

Brief Specification:

137 ALL ELECTRIC ATWATER KENT RADIO

CIRCUIT
Seven Valves are used in this revolutionary Superheterodyne circuit, of which four are of the Vari-Mu Super Pentode H.F. type, arranged as follows: Radio frequency stage first detector, oscillator, intermediate frequency amplifier, second detector of the Twin Diode type (which also acts as automatic volume control stage), coupled to a power Pentode output valve giving an undistorted output of 2,500 milliwatts. A full wave valve rectifier is also included. The selectivity is more than adequate for any location the separation being 9 to 10 kc

TUNING
A full vision illuminated dial calibrated in kc and compensated to ensure equal separation over the entire tuning range, 201 2000 metres

AUTOMATIC VOLUME CONTROL
This important additional feature enables one to set the volume to the exact level required. Once set, all stations will be received on the same level. This ingenious Atwater Kent device eliminates fading—that decreasing volume generally associated with foreign or distant reception

THREE-POINT TONE SWITCH
This allows a choice of tone to suit individual tastes, either high, medium or low.

LOUD SPEAKER
Large mains energised moving coil, giving superb range of volume and tone.

GRAMOPHONE PICK-UP
Connections are provided to allow of easy conversion to radio-gramophone.

CABINET
A beautifully constructed cabinet in figured walnut.

GENERAL
Suitable for A.C. Mains, 100 230 volts. Please state voltage when ordering.

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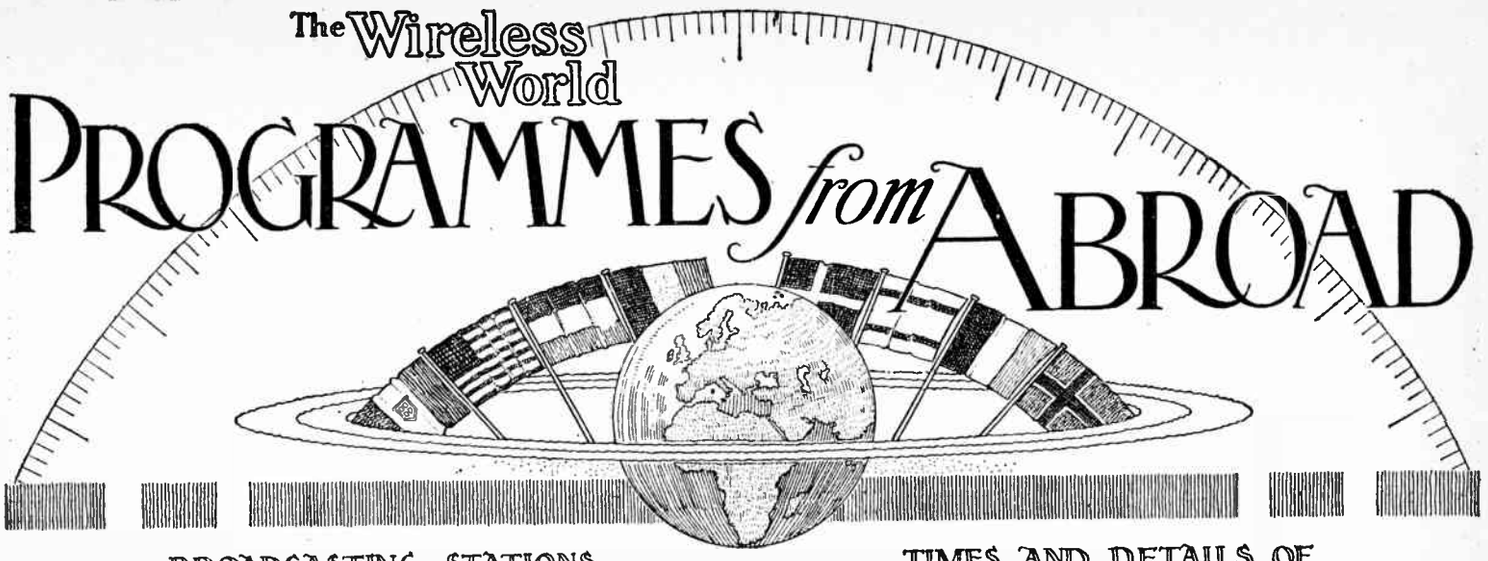
Write for our catalogue "B" which also includes Amplifiers and other Public Address Equipment.

The Wireless World

PROGRAMMES from ABROAD



BROADCASTING STATIONS ARRANGED IN ORDER OF WAVELENGTH

TIMES AND DETAILS OF FULL WEEK'S FOREIGN TRANSMISSIONS

Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)	
1875	160	8.5	Hilversum (Holland)	
1796	167	40	Lahti (Finland)	
1725	174	75	Radio Paris, C.F.R.	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (*S.-W. Stn. DJA on* 31.38 *m.*)	
1554.4	193	30	Daventry National	
1538	195	7	Ankara (Angora) (Turkey)	
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)	
1446	207.5	13	Eiffel Tower, Fl, Paris	
1412	212.5	120	Warsaw 1 (Poland)	
1380	217.5	100	Novosibirsk, RV6 (Russia)	
1348	222.5	30	Motala (Sweden). (*Relays Stockholm*)	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)	
1275	235	0.5	Tunis-Kasbah (Tunisia)	
1230	244	0.6	Boden (Sweden). (*Relays Stockholm*)	
1200	250	5	Stamboul (Turkey)	
1200	250	21	Reykjavik (Iceland)	
1170	256	25	Tashkent, RV11 (Russia)	
1154	260	7.5	Kalundborg (Denmark). (*Relays Copenhagen*)	
1117	268.5	40	Moscow, Popoff RV38 (Russia)	
1083	277	60	Oslo (Norway)	
1071	280	35	Tiflis, RV7 (Russia)	
1035	290	36	Kiev, RV9 (Russia)	
1000	300	100	Moscow (Russia)	
938	320	20	Kharkov, RV4 (Russia)	
857	350	100	Leningrad (Russia)	
840	357	18.5	Budapest (Hungary)	
825	363.6	50	Sverdlovsk, RV5 (Russia)	
770	389	0.6	Ostersund (Sweden). (*Relays Stockholm*)	
760	395	1.3	Geneva (Switzerland). (*Relays Sottens*)	
720	416.6	20	Moscow, RV2 (Experimental) (Russia)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)	
680	441.2	0.6	Lausanne (Switzerland). (*Relays Sottens*)	
574.7	522	0.7	Hamar (Norway). (*Relays Oslo*)	
574.7	522	2.5	Ljubljana (Yugoslavia)	
569	527	0.25	Freiburg-im-Breisgau (Germany). (*Relay Stn.*)	
568.1	528	2	Grenoble (France)	
566	530	0.25	Hanover (Germany). (*Relays Hamburg*)	
563	533	16	Wilno (Poland). (*Relay Station*)	
560	536	0.25	Augsburg (Germany). (*Relays Munich*)	
560	536	1.5	Kaiserslauten (Germany). (*Relays Munich*)	
558.6	537	1	Tampere (Finland). (*Relays Helsinki*)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	
542	554	10	Sundsvall (Sweden). (*Relays Stockholm*)	
537.6	558	3	Palermo (Italy)	
533	563	60	Munich (Germany)	
525	571	15	Riga (Latvia)	
517	580	15	Vienna (Rosenhügel) (Austria)	
509	589	15	Brussels No. 1, Velthem (Belgium). (*In French*)	
500.8	599	20	Florence, 1FI (Italy). (*Relays Turin*)	
495.8	605	1.2	Trondheim (Norway)	
488.6	614	120	Prague, No. 1 (Czechoslovakia)	
480	625	50	North Regional (Manchester)	
472.4	635	60	Langenberg (Germany)	
467	642	0.4	Aalesund (Norway)	
465.8	644	1.5	Lyons la Doua, PTT (France)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (*relays Heilsberg*); Klagenfurt (0.5 kW.) (Austria) (*relays Vienna*); Porsgrund (0.7 kW.) (*relays Oslo*), Tromsö (0.1 kW.), Bodö (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (*relays Stockholm*).	
453.2	662	10	Odessa, RV13 (Russia)	
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Rjukan (0.15 kW.), Notodden (0.08 kW.) (Norway) (*relays Oslo*).	
441.2	680	50	Rome, IRO. (*S.-W. Station, 2RO on* 25.4 *m.*)	
435.4	689	55	Stockholm, SASA (Sweden)	
430	698	2.5	Belgrade (Yugoslavia)	
424.3	707	2	Madrid, EAJ7 (Union Radio). (*After* 7.0 *p.m.*)	
424.3	707	100	Moscow, Imini Stalina (Russia)	
419.5	715	1.5	Berlin, No. 1, Witzleben (Germany)	
416.4	720.5	5	Rabat (Morocco)	
413	725	60	Athlone (Irish Free State)	
408.7	734	16	Katowitz (Poland)	
403.8	743	25	Sottens (Radio Suisse Romande) (Switzerland)	
398.9	752	25	Midland Regional	
394.2	761	12	Bucharest (Roumania)	
389.6	770	120	Leipzig (Germany)	
389.6	770	10	Archangel, RV36 (Russia)	
385.1	779	8	Toulouse (Radiophonie du Midi) (France)	
385.1	779	10	Stalino, RV26 (Russia)	
381	788	16	Lwow (Lemburg) (Poland)	
376.4	797	50	Scottish Regional (Falkirk)	
372.2	806	1.5	Hamburg (Germany)	
370.1	810.5	0.8	Radio, LL, Paris	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (*relays Lahti*); Kharkov, RV20 (10 kW.) (Russia).	
365.8	821	0.7	Fredrikstad (Norway). (*Relays Oslo*)	
364.1	824	1	Bergen (Norway)	
363.6	825	13	Algiers (Algeria)	
360.6	832	60	Mühlacker (Stuttgart) (Germany)	
355.9	843	50	London Regional (Brookmans Park)	
352.1	852	7	Graz (Austria). (*Relays Vienna*)	
348.8	860	7.6	Barcelona, EAJ1 (Spain)	
348.8	860	10	Leningrad, RV70 (Russia)	
345.2	869	11.5	Strasbourg, PTT (France)	
341.7	878	35	Brno (Brunn) (Czechoslovakia)	
338.2	887	15	Brussels II, Velthem (Belgium). (*In Flemish*)	
335	896	5	Cadiz (Spain)	
334.4	897	1.9	Poznan (Poland)	
331.5	905	50	Milan (Italy). (*Relays Turin*)	
328.2	914	60	Poste Parisien (France)	
325	923	60	Breslau (Germany)	
321.9	932	10	Göteborg (Sweden). (*Relays Stockholm*)	
318.8	941	0.25	Dresden (Germany). (*Relays Leipzig*)	
318.8	941	1.5	Naples, INA (Italy). (*Relays Rome*)	
315.8	950	1.6	Marseilles, PTT (France)	
312.8	959	1.7	Cracow (Poland)	
312.8	959	10	Genoa, 1GE (Italy). (*Relays Turin*)	
309.9	968	1	Cardiff	
307	977	0.7	Radio Vitus (Paris). (*S.-W. Stn. on* 43.75 *m.*)	
304	986	13	Bordeaux Lafayette, PTT (France)	
301.5	995	50	North National (Manchester)	
298.8	1004	11	Tallinn (Esthonia)	
296.1	1013	20	Huizen (Holland). (*After* 4.40 *p.m.*) (*Exchanges wavelengths with Hilversum every three months.*)	
293.5	1022	0.7	Limoges, PTT (France)	
293.5	1022	2.6	Kosice (Czechoslavakia)	
291	1031	10	Viipuri (Viborg) (Finland). (*Relays Helsinki*)	
288.3	1040	50	Scottish National (Falkirk)	
288.3	1040	—	British Relays (Bournemouth, Plymouth)	
286	1049	0.8	Montpellier (France)	
285.1	1052	0.7	Lyons (Radio-Lyon) (France)	

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Metres.	Kc.	kW.	Station.	Tuning Positions.
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	.....
283.6	1058	0.5	Innsbruck (Austria). (*Relays Vienna*) ..	.....
282.2	1063	2	Lisbon CT 1AA (Portugal). (*Short-wave Station on 31.25 m.*)	.....
281.2	1067	0.75	Copenhagen (Denmark)	.....
278.8	1076	13.5	Bratislava (Czechoslovakia)	.....
276.5	1085	60	Heilsberg (Germany)	.....
273.7	1096	7	Turin (Italy)	.....
271.5	1105	1.3	Rennes, PTT (France)	.....
269.8	1112	20	Bari (Italy)	.....
269.8	1112	0.25	Bremen (Germany). (*Relays Hamburg*) ..	.....
267.6	1121	1.5	Valencia (Spain)	.....
265.8	1128.5	1.3	Lille, PTT (France)	.....
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	.....
261.5	1147	50	London National (Brookmans Park)	.....
259.3	1157	17	Frankfurt-a.M. (Germany)	.....
257.1	1167	10	Hörby (Sweden). (*Relays Stockholm*) ..	.....
255.1	1176	0.7	Toulouse, PTT (France)	.....
253.1	1185	5	Gleiwitz (Germany). (*Relays Breslau*) ..	.....
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain) ..	.....
249.6	1202	0.8	Juan-les-Pins, Nice (France)	.....
247.7	1211	10	Trieste (Italy)	.....
245.9	1220	0.12	Swansea	.....
245.9	1220		Berne (0.5 kW.) (Switzerland) (*relays Beromünster*); Eskilstuna (0.2 kW.), Säffle (0.4 kW.) (Sweden) (*relays Stockholm*); Cassel (0.25 kW.) (Germany) (*relays Frankfurt*); Linz (0.5 kW.) (Austria) (*relays Vienna*); Pietarsaari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (*relays Helsinki*); Schaerbeek (0.1 kW.) (Belgium)	.....
244.1	1229	0.5	Basle (Switzerland). (*Relays Beromünster*) ..	.....
242.3	1238	1	Belfast (N. Ireland)	.....
240.6	1247	0.5	Stavanger (Norway)	.....
238.9	1256	2	Nürnberg (Germany). (*Relays Munich*) ..	.....
238	1260	1	Nimes (France)	.....
237.2	1265	3	Bordeaux, Sud-Ouest (France)	.....
235.5	1274	0.5	Kristiansand (Norway)	.....
235	1283	1.65	Lodz (Poland). (*Relay Station*)	.....
232.2	1292	0.25	Kiel (Germany). (*Relays Hamburg*) ..	.....
230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhätten).	.....
229	1310	0.5	Umea (Sweden)	.....
227.4	1319	0.5	Flensburg (Germany). (*Relays Hamburg*) ..	.....
224.4	1337	1	Cork (Irish Free State)	.....
223	1345	10	Fécamp, Radio-Normandie (France)	.....
222.9	1346	0.15	Hüdiksvall (Sweden)	.....
219.9	1365	1.5	Béziers (France)	.....
218.5	1373	0.2	Plymouth	.....
218.5	1373	0.5	Salzburg (Austria). (*Relays Vienna*) ..	.....
217	1382	0.5	Königsburg (East Prussia) (Germany) ..	.....
217	1382	0.25	Karlstad (Sweden)	.....
215.6	1391	0.1	Brussels, Radio-Chatelineau (Belgium) ..	.....
215.6	1391	0.2	Halmstad (Sweden)	.....
214.3	1400	1	Aberdeen	.....
214.3	1400	10	Warsaw, No. 2 (Poland)	.....
211.3	1420	1	Newcastle	.....
209	1430	0.8	Magyarovar and Miskolcz (Hungary)	.....
207	1450	0.15	Boras (Sweden)	.....
206	1460	0.2	Oruskoldsvik (Sweden)	.....
204.1	1470	0.2	Gävle (Sweden)	.....
202.7	1480	0.25	Kristineham (Sweden)	.....
201.3	1490	0.25	Hälsingborg (Sweden)	.....
195	1530	0.2	Karlskrona (Sweden)	.....

PRINCIPAL SHORT-WAVE STATIONS.

(N.B.—Times of Transmission, given in parentheses, are approximate only and represent G.M.T.)

Metres.	Kc.	Call Sign.	Station.	Tuning Positions.
80.0	3,750	2RO	Rome	.....
70.2	4,273	RW15	Khabarovsk (Russia). (*Daily* 09.00–12.00)	.....
63.0	4,760	CT3AR	Funchal (Madeira). (*Wed.* 20.30, *Sun.* 11.30)	.....
62.56	4,795	VE9BY	London, Ont. (Canada). (*Sun.* 06.00) ..	.....
62.5	4,800	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 24.00)	.....
58.3	5,146	PMY	Bandoeng (Java). (*Daily* 12.20 *and* 07.00.)	.....
58.0	5,172	OK1MPT	Prague (Czechoslovakia). (*Tues. and Fri.* 19.30.)	.....
54.52	5,502	W2XBH	Brooklyn, N.Y. (U.S.A.). (*Relays WGU*)	.....
52.7	5,690	FIU1	Tananarive, P.T.T. (Madagascar)	.....
52.5	5,714	HCJB	Quito (Ecuador). (*Daily* 12.30)	.....
51.22	5,857	XDA	Chapultepec (Mexico)	.....
50.6	5.930	HKO	Medellin (Colombia)	.....
50.26	5,970	HVJ	Vatican State, Rome. (*Daily* 19.00) ..	.....
50.0	6,000	ZL3ZC	Christchurch (New Zealand). (*Wed.* 03.00, *Sat.* 07.30.)	.....
50.0	6,000	—	Bucharest (Roumania)	.....
50.0	6,000	RW59	Moscow	.....
50.0	6,000	EAR25	Barcelona, Radio Club (Spain). (*Sat.* 20.00.)	.....
49.96	6,005	VE9DR	Drummondville (Canada). (*Relays CFCF*, 01.00–05.00.)	.....
49.96	6,005	HRB	Tegucigalpa (Honduras). (*Daily ex. Sun.* 00.00–05.00.)	.....
49.83	6,020	W9XF	Chicago, Ill. (U.S.A.). (*Relays WENR*) ..	.....
49.8	6,023	XEW	Mexico City (Mexico). (*Daily* 01.00) ..	.....
49.67	6,042	W2XAL	Coytesville, N.J. (U.S.A.). (*Relays WRNY.*)	.....
49.59	6,050	VE9HX	Halifax (Nova Scotia). (*Relays CHNS*) ..	.....
49.58	6,050	GSA	Empire Broadcasting, Zones 1–5	.....
49.5	6,060	VQ7LO	Nairobi (Kenya Colony). (*Daily* 16.30) ..	.....
49.5	6,060	W8XAL	Mason, Ohio (U.S.A.). (*Relays WLW*) ..	.....
49.5	6,060	W3XAU	Philadelphia, Pa. (U.S.A.). (*Relays WCAU.*)	.....
49.43	6,069	VE9CS	Vancouver, B.C. (Canada)	.....
49.4	6,072	UOR2	Vienna. (*Tues.* 13.00, *Thurs.* 15.00, *Sat.* 23.00.)	.....
49.34	6,080	W2XCX	Kearny, N.J. (U.S.A.). (*Relays WOR*) ..	.....
49.34	6,080	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*) ..	.....
49.22	6,095	VE9GW	Bowmanville, Ont. (Canada). (*Daily* 20.00)	.....
49.2	6,098	ZTJ	Johannesburg (S. Africa). (*Weekdays* 09.00, 14.00 [*Sat.* 14.30] *and* 17.00, *Sun.* 13.00 *and* 17.30.)	.....
49.18	6,100	W3XAL	Bound Brook, N.Y. (*Relays WJZ*) ..	.....
49.1	6,110	VUC	Calcutta, India. (*Daily* 13.00)	.....
49.02	6,120	W2XE	Long Island, N.Y. (U.S.A.). (*Relays WABC.*)	.....
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	.....
48.8	6,147	VE9CL	Winnipeg (Canada). (*Daily ex. Sun.* 00.30)	.....
48.65	6,167	X1F	Mexico City (Mexico)	.....
48.35	6,205	HKC	Bogota (Colombia). (*Daily* 15.00) ..	.....
48.2	6,220	2RO	Rome (Italy)	.....
48.05	6,243	HKD	Barranquilla (Colombia). (*Weekdays* 23.15)	.....
48.0	6,250	CN8MC	Casablanca (Morocco). (*Relays Rabat*) ..	.....
47.0	6,382	HC1DR	Quito, Ecuador. (*Daily* 01.00)	.....
46.69	6,425	W3XL	Bound Brook, N.J. (U.S.A.). (*Relays WJZ irregular.*)	.....
46.67	6,426	VE9BY	London, Ont. (Canada). (*Sat.* 01.00 *Sun.* 02.00.)	.....
45.38	6,611	REN	Moscow (*Relays Trade Union Stn.*)	.....
45.0	6,667	FM8KR	Constantine (Algeria). (*Mon. and Fri.* 23.00.)	.....
45.0	6,667	TGW	Guatemala City (Central America). (*Daily* 03.00.)	.....
43.75	6,860	—	Radio Vitus, Paris. (*Daily* 20.30) ..	.....
43.0	6,970	EAR110	Madrid. (*Tues. and Sat.* 22.30)	.....
41.7	7,195	VS1AB	Singapore (Malay States). (*Sun. and Wed.* 15.30.)	.....
41.6	7,211	EAR58	Teneriffe (Radio Club) (Canary Islands) ..	.....
41.5	7,230	HB9D	Zurich (Radio Club) (Switzerland). (*1st and 3rd Sun.*)	.....
41.0	7,320	HSP2	Bangkok (Siam). (*Mon.* 14.00)	.....
40.3	7,443	HBQ	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.15)	.....
39.7	7,556	HKF	Bogota (Colombia). (*Westinghouse Labs.*)	.....
39.4	7,612	X26A	Nuevo Laredo (Mexico). (*Thurs.* 16.00) ..	.....
38.7	7,797	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.15.)	.....
36.92	8,125	PLW	Bandoeng (Java). (*Daily* 10.00–14.00) ..	.....
34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 23.00)	.....
34.68	8,650	VE9BY	London, Ont. (Canada). (*Mon.* 21.00) ..	.....
33.50	8,928	TGX	Guatemala City (S. America)	.....
32.26	9,300	—	Rabat (Morocco). (*Sun.* 21.00)	.....
31.58	9,500	PRBA	Rio de Janeiro (Brazil). (*Daily* 21.30) ..	.....
31.55	9,510	VK3ME	Melbourne (Australia). (*Wed. and Sat.* 10.00.)	.....
31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5 ..	.....
31.51	9,520	OXY	Skamlebaek (Denmark). (*Relays Copenhagen.*)	.....
31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.). (*Relays WGY*)	.....
31.38	9,560	DJA	Zeesen (Germany). (*Daily* 13.00)	.....
31.35	9,570	SRI	Posen (Poland). (*Tues. and Thurs.* 17.30)	.....
31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.). (*Relays WBZ.*)	.....
31.3	9,582	W3XAU	Philadelphia, Pa. (U.S.A.). (*Daily ex. Thurs. and Fri.* 21.00.)	.....
31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.15)	.....
31.29	9,585	GSC	Empire Broadcasting, Zone 3	.....
31.28	9,590	VK2ME	Sydney (Australia). (*Sun.* 10.00) ..	.....
31.25	9,598	CT1AA	Lisbon (Portugal). (*Tues. and Fri.* 22.00–24.00)	.....
31.10	9,640	HS2PJ	Bangkok (Siam). (*Mon.* 02.00–05.00) ..	.....
30.43	9,869	EAQ	Aranjuez (Spain). (*Daily* 23.30, *Sat.* 18.00)	.....
30.0	10,000	—	Belgrade (Yugoslavia). (*Mon.* 19.00) ..	.....
29.3	10,228	TI4NRH	Heredia (Costa Rica). (*Daily* 22.00 *and* 02.00.)	.....
28.98	10,350	LSX	Buenos Aires (Argentina). (*Daily* 20.30)	.....
26.83	11,180	CT3AQ	Funchal (Madeira). (*Tues. and Thurs.* 10.30–12.30.)	.....
25.63	11,700	FYA	Pontoise (France). (*Colonial Stn. E-W, daily* 20.00.)	.....
25.6	11,720	VE9JR	Winnipeg (Canada). (*Daily ex. Sat. and Sun.* 17.45)	.....
25.53	11,750	GSD	Empire Broadcasting, Zones 1 & 4	.....
25.5	11,760	XDA	Chapultepec (Mexico). (*Daily* 20.00) ..	.....
25.4	11,813	VE9GW	Bowmanville (Canada). (*Daily* 18.00)	.....
25.4	11,810	2RO	Prato Smeraldo, Rome. (16.00 *and* 19.30)	.....
25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*) ..	.....
25.28	11,865	GSE	Empire Broadcasting, Zone 2	.....
25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	.....
25.2	11,905	FYA	Pontoise (France). (*Colonial Stn. N-S*) ..	.....
23.38	12,830	—	Rabat (Morocco). (*Sun.* 11.30)	.....
20.5	14,630	XDA	Chapultepec (Mexico). (*Daily* 19.30) ..	.....
19.9	15,075	TI4NRH	Heredia (Costa Rica). (*Sat., Sun., Mon.* 16.00 *and* 21.00)	.....
19.84	15,120	HVJ	Vatican State, Rome. (*Daily* 10.00) ..	.....
19.81	15,140	GSF	Empire Broadcasting, Zone 5	.....
19.73	15,200	DJB	Zeesen (Germany). (*Daily* 13.00–17.00) ..	.....
19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.) (*Relays KDKA.*)	.....
19.68	15,244	FYA	Pontoise (France). (*Colonial Stn. E-W*) ..	.....
19.56	15,340	W2XAD	South Schenectady, N.Y. (U.S.A.) (*Daily* 18.00.)	.....
16.9	17,750	HSP	Bangkok (Siam). (*Sun. and Tues.* 21.00)	.....
16.88	17,770	GSG	Empire Broadcasting, Zone 2	.....
16.87	17,780	W3XAL	Bound Brook, N.J. (*Weekdays* 13.00) ..	.....
16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*) ..	.....
14.47	20,730	LSY	Buenos Aires (Argentina). (*Sun.* 21.00) ..	.....
13.97	21,470	GSH	Empire Broadcasting, Zone 3 (*Daylight working*)	.....
13.92	21,540	W8XK	East Pittsburg (*Relays KDKA.*)	.....

FOREIGN SUNDAY PROGRAMMES

MARCH THE FIFTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"Science and the Idea of God," by Prof. Simpson. Devotional Service. Orchestral concert.
LONDON REGIONAL	Service from Hasen Green Baptist Church, Ealing. Sunday orchestral concert.
MIDLAND REGIONAL	Organ and pianoforte recital from Albert Hall, Nottingham. Service from St. Martin's Church, Birmingham.
NORTH REGIONAL	Service from Holy Trinity Church, Leeds.
WEST REGIONAL	Carolare No. 9. Orchestral concert.
SCOTTISH REGIONAL	Service from St. Cuthbert's Church, Edinburgh.
BELFAST	Service from Carlisle Memorial Methodist Church.

ABROAD

ATHLONE	8.31 p.m. Carillon recital by Dr. Staf Gebruers, relayed from St. Colman's Cathedral, Cobh.
BERO-MUNSTER	7 p.m. "Tiefland," an opera by d'Albert.
BRUSSELS (No. 1)	8.30 p.m. Light opera: "The Land of Smiles," by Lehar.
BRUSSELS (No. 2)	6.45 p.m. Bach organ recital, by Louis Joos, from the Carmelite Church.
COPENHAGEN	7.1 p.m. Wind instrument concert.
LANGENBERG	6 p.m. Concert programme and Election Results from Berlin (Witzleben).
MADRID (Union Radio)	9.35 p.m. An evening of classical recitals.
ROME	7.45 p.m. "L'Amore tra i pampini" (Love among the vine leaves), an operetta in three acts by Guilio de Micheli.

ATHLONE

413 metres; 60 kW.; and CORK, 224.4 metres.—**8.30 p.m.**, Time Signal. **8.31**, Carillon Recital by Dr. Staf Gebruers, relayed from St. Colman's Cathedral, Queenstown. **8.45**, A Sketch by Paula Luby and Company. **9.15**, Talk by C. M. McDowell, with Illustrations by G. Crofts (Tenor). **9.30**, The Station Orchestra. **10.0**, Anglo-Irish Songs, by M. O'C. Maguire (Baritone). **10.15**, Uilleann Pipe Solos, by Liam Breatneach. **10.30**, Irish Music by the Station Orchestra. **11.0**, Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**11.0 a.m.**, Chimes from the Cathedral and Weather Forecast. **1.0 p.m.**, Light Music on Gramophone Records. **1.30** (in an interval), Theatre Notes. **2.0**, Film Review, followed by Concert by the Station Sextet. **3.0**, Programme for Hospitals and Benevolent Institutions, with Gramophone Records. **4.0 to 5.30**, Interval. **5.30**, Agricultural Talk in Catalan, followed by Music by the Station Orchestra. **6.30**, An Opera relayed from the Gran Teatro del Liceo. **9.0**, A Musical Comedy on Gramophone Records. **10.45**, Chess Lesson. **11.0**, (approx.), Close Down.

BARI

270 metres; 20 kW.—**9.45 a.m.**, Agricultural Notes. **10.5**, Sacred Music. **10.30**, Bible Reading. **12 Noon**, Giornale Radio. **12.10 p.m.**, Popular Music on Gramophone Records. In the intervals at **12.55**, Weather Report, and at **1.0**, Time Signal and Announcements. **4.30 to 5.30**, Light Music on Gramophone Records and Sports Notes. **7.0**, Sports Notes and Giornale Radio. **7.30**, Time Signal and Announcements. **7.35** (approx.), Concert. Soloists: Lino d'Angelo (Baritone), Mileno Barberio (Soprano), Moscovita (Licari); Scene from I promessi sposi (Ponchielli); Soprano Solos: (a) Lusingo (de Curtis), (b) Di te (Tirindelli); African Fantasia (Donati); Baritone Solo: Leila (Padilla); Soprano Solo: Vieni (Carsini); Selections from La Bohême (Puccini); Pattuglia di zigani (Ranzato); Serenade (Broggi); Baritone Solo: Il gobbo del Califfo (Casavola); Soprano Solo: Allerseelen Saturnale (Escobar); Soprano Aria from Adrienne Lecouvreur (Cilea); Baritone Solo: Aria from The Force of Destiny (Verdi); Caccia (Magro). Talk in the interval. **9.30**, Gramophone Records of Variety Music. **9.55**, News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

KONIGS WUSTERHAUSEN; 1,635 metres; 60 kW.—**11.0 a.m.**, See **Breslau.** **11.55**, Nauen Time Signal. **12 Noon**, Concert from **Heilsberg.** **1.0 p.m.**, Talk for Parents. **1.30**, Dramatic Programme for Children. **2.0**, Wind Instrument Concert from **London.** **2.40**, Hans Rehberg reads from his own Works. **3.0**, Concert of Light Music. **3.30**, Talk: The East Mark's Struggle for Life. **4.0**, Chamber Music—Unfamiliar Pianoforte Music by Mozart: Overture in the Style of Händel; Variations on La belle Françoise; Four Little Pieces by the Eight Year Old Mozart; March in C; Adagio in B Minor; Rondo in F; German Dances. **4.45**, Religious Address: Famous Germans and their Faith in God. **5.10**, Rural Programme on Gramophone Records. **6.0**, Programme from **Berlin (Witzleben).** In the intervals at **9.30**, Weather, News and Sports Notes, and at **9.45**, Weather Report for Shipping.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**10.30 a.m.**, See **Leipzig.** **10.55**, Radio Report: Berlin at the Polls. **11.5**, Concert from **Breslau.** **12.45 p.m.**, Radio Report: Berlin at the Polls. **1.0**, New Neighbours—Settler and Peasant meet. **2.0**, Radio Report: Berlin at the Polls. **1.30**, Fairy Tales for Children. **2.30**, Orchestral Concert, conducted by Joe Balay: Overture, Rosamund (Schubert); German Dances (Beethoven); Suite, Auf der Wanderschaft (Klughardt); Suite in Dance Form (Kienzl). **3.20**, Alfred Mann reads from his own Short Stories. **3.35**, Concert (contd.): Overture, Heimkehr aus der Fremde (Mendelssohn); Selection from Das Nachtlager von Granada (Kreutzer); Idyll, Biene Maja (Schröder); Last Movement from the Fifth Serenade (Fuchs); Military March (Schubert). **4.15**, Radio Report: Berlin at the Polls. **4.30**, Sonata in D, Op. 53 (Schubert). **5.0**, Talk on the Election. **5.30**, Herbert Lipp reads from his own Works. **5.50**, Sports Notes. **5.55**, Announcement. **6.0**, Concert by the Berlin Wireless Orchestra and Choir. From 6 o'clock onwards, Announcements of Election Results. **9.0**, Weather, News and Sports Notes, followed by Wind Instrument Concert and Light Music on Gramophone Records.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

279 metres; 14 kW.—**4.45 p.m.**, Concert by the Station Orchestra, conducted by F. Dyk: Overture, Die schöne Galathée (Suppé); Potpourri of Russian Songs (Lindemann); By the Blue Hawaiian Waters (Ketelbey); Waltz (Iliza); Slav Caprice (Bayer); Polka (Ridky); Gallop, Petersburger Schlittenfahrt (Eilenberg); March, Don Quixote (Rupprecht). **5.45 to 7.0**, Programme relayed from Bánská Bystrica. **5.45**, Song Recital. **6.0**, Pianoforte Recital. **6.15**, Talk. **6.30**, Violin Recital. **6.45**, Talk. **7.0**, Popular Music on Gramophone Records. **7.10**, See **Prague.** 10.0 (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and GLEIWITZ, 253 metres.—**9.0 a.m.**, Catholic Service. **10.0**, Reading: Für das deutsche Volk (Josef Görres). **10.30**, See **Leipzig.** **11.0**, Concert by the Station Orchestra, conducted by Franz Marszalk. **1.0 p.m.**, News. **1.10**, Two Talks: (a) How to keep an Aquarium, (b) Remember the Birds. **1.35**, Agricultural Talk. **1.50**, Talk: The Mutual Duties of Master and Apprentice. **2.40**, Reading: A Cruise with Sponge-Divers (Armin Schönberg). **3.0**, Programme for Children. **3.30**, See **Stuttgart.** **4.30**, Talk: The French Disarmament Plan (the Herriot Plan). **4.55**, Brahms Pianoforte Recital by Edo Dammert. Variations on Themes by Paganini; Two Intermezzi, Op. 118. **5.25**, Hanns Grimm reads from his own Works. **6.0** till Close Down, See **Berlin (Witzleben).**

BRNO

342 metres; 35 kW.—**4.30 p.m.**, Gramophone Concert of Russian Music. **5.0**, German Transmission: Concert by a Male Voice Choir conducted by Otto Hawran. **5.45**, Talk: Correct Pronunciation. **6.0**, See **Prague.** **6.15**, See **Moravská-Ostrava.** **7.10**, See **Pargue.** 10.0 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—**10.0 a.m.**, Concert by the Small Station Orchestra, conducted by P. Leemans. Soloist: M. Wigy (Violin). Slav March (Tchaikovsky); Meditation (Glazunov); Campanella (Handel); Selection from Hérodiade (Massenet); Gramophone Record: Aria from La Traviata (Verdi); Violin Solo: Jota Navarra (Sarasate); The Nutcracker Suite (Tchaikovsky). **11.0**, Gramophone Concert of Popular Music. **12 Noon**, Concert by the Radio Orchestra, conducted by Charles Walpot. **1.0 p.m.**, Journal Parlé. **1.10**, Concert by Mickey's Club Jazz Attraction, conducted by Ludo Langlois. **1.30**, Une vocation—Radio Sketch (Léon Donnay). **1.40**, Concert (contd.). **3.0**, Music inspired by Greece—Concert by the Liège Symphony Concert Society, conducted by Armand Marsick, relayed from **Liège (280 metres):** Ballet Music from Prometheus (Beethoven); Air from Orpheus (Monteverdi); Final Scene from Act I of Alcestis (Monteverdi); Symphonic Poem, Le jeunesse d'Hercule (Saint-Saëns); Selection from Antigone (Honegger); Gramophone Records (Debussy): (a) Rêverie, (b) Jardins sous la pluie; Talk on Popular Greek Songs; Tableaux grecs (Marsick); Overture on Three Greek Themes (Glazunov). **5.0**, Concert by the Symphony Orchestra, conducted by Jean Kumps. Soloist: Mme. Husson-Michaux (Pianoforte). Symphonic Variations on old Flemish Airs (Gilson); Fantasia for Pianoforte and Orchestra (Degreef); Divertissement (Delcroix); Walloon Rhapsody (Brumagne). In the interval at **5.30** (approx.), Football Results. **6.0**, Song Recital by Mme. Andriani: Plainte, d'Ariane (Cocquard); Still wie die Nacht (Bohm); Von ewiger Liebe (Brahms); Ich liebe dich (Grieg). **6.15**, Gramophone Records: Märchenerzählungen, Nos. 1 and 4 (Schumann); Waltz from Faust (Liszt). **6.30**, Programme for Children. **7.0**, 'Cello Recital of Music by Andrey Iliashenko. **7.15**, Religious Address. **7.30**, Journal Parlé. **8.0**, Gramophone Record: Italian Caprice (Tchaikovsky). **8.15**, Blindfold—Radio Sketch (Jesek and Kosik), translated from the Czech. **8.30**, Act I of The Land of Smiles—Operetta in Three Acts (Lehár). **9.30**, Gramophone Concert of Light Music. **9.45**, Act II of The Land of Smiles. **10.45**, Journal Parlé. **10.55**, Light Music on Gramophone Records. **11.10**, Act III of The Land of Smiles. **11.40**, Dance Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 338.2 metres; 15 kW.—Programme in Flemish. **10.0 a.m.**, Gramophone Records of Classical Music. **11.0**, Concert by the Small Station Orchestra, conducted by P. Leemans. **12 Noon**, Concert by Mickey's Club Jazz Attraction, conducted by Ludo Langlois. **1.0 p.m.**, Le Journal Parlé. **1.10**, Concert by the Radio Orchestra, conducted by Charles Walpot. **5.0**, Concert by the Radio Orchestra, conducted by Charles Walpot. In the interval at **5.15**, Sports Notes. **6.0**, Concert of Spanish Music, by the Station Orchestra, conducted by P. Leemans: Overture, Une Fête à Aranjuez (Demersseman); Toréador et Andalouse (Rubinstein); Entr'actes from Carmen (Bizet); Spanish Serenade (Glazunov); Spanish Caprice for Pianoforte (Moszkovsky); Habanera (Laparra); Suite, La Feria (Lacôme). **6.45**, Bach Organ Recital by Louis Joos, from the Carmelite Church. **7.15**, Religious Address. **7.30**, Music Review by Paul Gilson. **8.0**, Concert by the Station Orchestra, conducted by Jean Kumps. Soloist, M. Heirstraete (Songs), and Mlle. Tambuyser (Pianoforte). Rhapsody (Candael); Concert Piece for Pianoforte and Orchestra (Weber); Pastorale (D'Hayer); Selection from Sauge fleurie (d'Indy); Songs; Symphonic Sketches (Soudant) (a) Arabesque, (b) Quiétude, (c) Fantasia; Songs; Two Marches (Iliiaskenko); Marche joyeuse (Chabrier). **10.0**, Le Journal Parlé. **10.10**, Gramophone Dance Music. **11.0**, Concert by Willie Lewis, of the Penguin Club. **12 Midnight** (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—**5.25 p.m.**, Concert by the Marco Orchestra. **6.0**, Talk: Romanian Industrial Policy. **6.40**, Variety Music on Gramophone Records. **7.0**, Viktoria and her Hussar—Operetta in Three Acts (Abraham). News in the interval.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on **840 metres** from **6.30 to 11.0 p.m.**—**8.0 a.m.**, News and Beauty Hints. **9.0**, Evangelical Service Relay. **10.0**, Sacred Music and Sermon, followed by Time, Weather, News, and Orchestral Concert. In the interval, Wireless Review. **1.0 p.m.**, Popular Music on Gramophone Records. **2.0**, Agricultural Talk. **2.45**, Educational Talk. **3.30**, News. **3.35** (approx.), Military Band Concert conducted by Fricsay: Selection from Orpheus in the Underworld (Offenbach); Waltz, The Blue Danube (Joh. Strauss); Hungaria (Leopold); Selection from Magnas Miska (Szirmai); Hungarian March (Fricsay). **4.25**, Ethnological Talk. **5.15**, Concert by the Pali Pertis Cigány Band. **6.0**, Humorous Talk. **6.45**, Dramatic Programme. **8.30**, Concert by a Cigány Band from the Hotel Hungaria. **9.15**, Variety Entertainment from the Labriola Theatre, followed by Concert from the Hotel Hungaria (contd.). **11.0** (aprox.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and KALUNDBORG, 1,153 metres; 7.5 kW.—**11.0 a.m.**, Time Signal and Chimes from the Town Hall. **11.2**, Concert by the Louis Preil's Instrumental Ensemble. **12.30 p.m.**, Talk in English. **12.50**, Talk in German: German Authors. **1.10**, Talk in French: The Town of Lyons. **1.30**, Gramophone Concert of Variety Music. **1.55**, Programme for Children. **2.25**, Concert by the Radio Symphony Orchestra, relayed from the Oddfellows' Hall. **4.0** (also relayed by **Skamleback** on **31.51 metres**), Divine Service, relayed from the Castle Church, Christiansborg. **5.20**, Talk. **5.50**, Weather. **6.0**, News. **6.15**, Time Signal and Sports Notes. **6.30**, Talk for Workers. **7.0**, Time Signal from the Town Hall. **7.1**, Wind Instrument Concert, conducted by Launy Grondahl: March (Arensberg); Waltz from Die Puppenfee (Bayer); Polonaise No. 2 (Liszt); Mazurka (Joh. Strauss); Overture, Der Königsleutnant (Till); Parademarsch (R. Strauss). **7.35**, Sound Film—a Contemporary Satire, arranged for Radio by J. H. Rössler. **7.50**, Wind Instrument Concert (contd.).: Historical Military Marches. **8.25**, Song Recital by Margrethe Krabbe Sadolin, with Guitar Accompaniment. **8.45**, Wind Instrument Concert (contd.): Danish Music. **9.15**, News. **9.25**, Reading. **9.40**, Wind Instrument Concert (contd.): Light Music. **10.0**, **Dance** Music by the Teddy Petersen Band, relayed from the Wivex Restaurant. In the interval at **11.0**, Time Signal and Chimes from the Town Hall. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**12 Noon**, Radio Gazette and News. **12.30 p.m.**, Concert of Variety Music. **4.0 to 8.0**, Programme in English by the I.B.C. Announcers: C. Danvers Walker, R. Chene, and B. McNabb. **4.0**, Programme for Children. **4.30**, Children's Club Concert. **5.0**, International Broadcasting Club Concert for Leeds Listeners: The Middy March (Alford); The Meynel Hunt; Special Message from Captain Leonard Plugge, President and Founder of the Club; Selection from Rigoletto (Verdi); National Emblem March; John Peel; The Elephant March; Oh! Star of Eve from Tannhäuser (Wagner); O who will o'er the Downs so free?; Fire Star; Toreador Song from Carmen (Bizet); Britelodia Selection. **6.0**, Octet Concert: Extase; The Piccaninnies' Picnic; Serenade; Twilight on the Waters; The Butterfly; Träumerei; The Grasshoppers' Dance; Humoresque. **6.30**, Orchestral Concert: Selection from Les millions d'Arlequin (Drigo); Poor Butterfly; Waltzes from A Waltz Dream (O. Straus); March from Sylvia (Delibes); Old Spanish

Song (Aubert); Selection from The Student Prince (Romberg); Sleepy Valley (Hanley). **7.0,** Military Band Concert: Overture, Zampa (Hérold); The Squirrel Dance; The King's Guard; Tally Ho; Cradle Song; In a Persian Market (Ketelbey); Overture, Morning, Noon and Night (Suppé). **7.30,** Vocal Concert: Overture Medley (arr. Carl Peters); Duet, The Moon hath raised her Lamps (Benedict); Asleep in the Deep (Lamb); The Village Blacksmith (Weiss); Duet: Watchman, what of the Night? (Sergeant); In Cellar cool (Traditional); The Windmill (Nelson); Orchestra: The Phantom Brigade (Myddleton). **8.0,** Concert of Opera and Operetta Music. **9.0** till Close Down, Programme in English by the I.B.C. **9.0,** Organ Recital: Indian Love Lyrics (Woodforde-Finden); Selection from Les millions d'Arléquin (Drigo); Bird Songs at Eventide (Coates); The Londonderry Air (Traditional); A Palace of Dreams (Waller); Ballet égyptien (Luigini). **9.30,** Concert of Light Classical Music: Overture, The Daughter of the Regiment (Donizetti); Duet: Lightly, Lightly, from Monsieur Beaucaire (Messager); Sea Shanty, Rio Grande (arr. Harris); Violin Solo: Hejre Kati (Hubay); Duet: Give me thy Hand, oh fairest, from Don Juan (Mozart); Soprano Solo: The Pipes of Pan (Monckton); Hungarian Medley (arr. Leggatt). **10.0,** Orchestral Concert: Selection from Merrie England (German); Waltz, Once on the Rhine (Ostermann); Danse Bagatelle (Bourdon); Woodland Peace (Favilla); Ginger Snaps (Bourdon); Selection from Wild Violets (Stolz). **10.30,** Popular Half-Hour: I'm sure of Everything but you; What more can I ask? Brighter than the Sun; The World is so small; Mediterranean Madness; Cheerful little Earful; Overnight: Selection from The Merry Widow. **11.0,** Song Recital: The Rosary; Killarney; Tom Bowling; Serenade (Pierné); Once Again; Terence's Farewell to Kathleen; Oft in the Stilly Night; Salut d'amour (Elgar). **11.30,** Accordion Music: Selection from Carmen (Bizet); C'est un petit nid; J'aime la musique; La Javanette; Les bas à pointes; Mona Lisa; Tango, Señorita; Selection from Faust (Gounod). **12 Midnight,** International Broadcasting Club Concert for Leeds Listeners: The Middy March (Alford); The Meynel Hunt; Special Message from Captain Leonard Plugge, President and Founder of the Club; Selection from Rigoletto (Verdi); National Emblem March; John Peel; The Elephant March; Oh! Star of Eve, from Tannhäuser (Wagner); O who will o'er the Downs so free? Fire Star; Toreador Song from Carmen (Bizet); Bitelodia Selection. **1.0 a.m., (Monday),** Variety Concert; Fall in and Follow the Band; Hoge Brothers; In the Train; Writing a Letter for Winnie; Blue Bells; You can't see the Sea to-day, Sir; Sally; Proverbs. **1.30,** Songs: We're Friends again; Because; Ah, sweet Mystery of Life; I bring a Love Song; Song of the Islands; The Song of Songs; You will remember Vienna; You are my Heart's Delight. **2.0,** Variety Music: By the Fireside; Hoch Caroline; Goodnight little Girl, Goodnight; Long Ago; Sing Brothers; Hummin' to Myself; When the Rest of the Crowd goes Home; What would you do; Let's all dance the Polka; We will always be Sweethearts; How are you? Night shall be filled with Music; Moonlight on the River; Marta; Song of the Harp; Shadows on the Window. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259 metres; 17 kW.; and **CASSEL, 245.9 metres;** and **TRIER, 259.3 metres.**—**10.30 a.m.,** See **Leipzig. 11.0,** See **Stuttgart. 12 Noon,** See **Langenberg. 1.30 p.m.,** Agricultural Hints. **1.40,** Two Agricultural Talks. **2.30,** See **Stuttgart. 3.30,** See **Langenberg. 5.0,** Talk: Welfare Work among Women in Protestant Parishes. **5.25,** A Pleasant Interlude. **5.55,** Sports Report. **6.0 till Close Down,** See **Berlin (Witzleben). 9.0** (in an interval), Time, News, Weather, and Sports Notes.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.**—**10.30 a.m.,** See **Leipzig. 11.0,** Concert from the Deutsches Haus, Flensburg. **11.55** (in an interval), Time and News. **1.0 p.m.,** Programme for Children. **1.35,** Reading of Modern Fairy Tales. **2.0** (from **Hanover**), Concert of Folk Music by the Station Orchestra and the Hanover Choral Society. **3.0,** Talk: The Value of Cheerfulness. **3.25,** Programme in North German Dialect. **4.0,** Cannae—a Historical War Story in Dream Form for the Centenary of the Birth of Field-Marshal Schlieffen. **5.0,** Pianoforte Recital of Modern Lyric Pieces: Aus meinem Tagebuch (Max Reger); (a) Sostenuto in F, (b) Moderato in E, Impressions intimes (Federico Mompou); In der Nacht (Ernst Bloch); Dance Air from Forgotten Melodies (Nicholas Metner). **5.30,** Dialogue on Sports. **5.40,** Sports Notes. **5.55,** Weather. **6.0,** Concert from **Berlin (Witzleben).** In the interval, Report on Elections. **9.0,** News Bulletin. **9.20,** Concert and Election Results from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW; and **DANZIG, 453.2 metres.**—**11.0 a.m.,** Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky: Soloist: Hans Erich Riebensahm (Pianoforte); Overture, Titus (Mozart); Suite (Julius Bittner); Variations for Pianoforte and Orchestra (Chopin); Overture, In der Natur—for Orchestra (Dvorak); Concert Piece in F Minor, Op. 79 for Pianoforte and Orchestra (Weber); Ballet Music from The Demon (Rubinstein); Pizzicato-Polka (Joh. Strauss); Saschinka—An arrangement of Russian Gipsy Melodies and Dances (Schirmann). **1.0 p.m.,** Talk on Chess. **1.30** (from **Danzig**), Talk for Young People. **2.0,** Concert of Old and New Children's Songs by the Radio Choir and the Little Orag Orchestra. **2.40,** Topical Review. **2.50,** Orchestral Concert, conducted by Eugen Wilcken. Sports Notes in the Interval. **4.30,** Talk: The German Artists' Colony in Majorca. **5.0,** Songs of Early Spring—Recital by Gertrud von Borzestowski (Soprano). **5.30,** Reading: Thoughts on Famous Musicians (Carl Reinicke). **6.0,** Programme from **Berlin (Witzleben).**

HILVERSUM

Announced **HUIZEN, 296.1 metres;** 20 kW. (7 kW. up to **4.40 p.m.**).—**11.55 a.m. to 3.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **11.55,** Concert by the K.R.O. Sextet. **1.45 p.m.,** Political Talk. **2.10,** Military Band Concert, conducted by S. van Leenwen. **3.40,** Programme for Invalids. **4.40 to 7.25,** Programme of the Christian Radio Society (N.C.R.V.). **4.40,** Divine Service, relayed from a Church in Voorschoten. **6.5,** Sacred Music on Gramophone Records. **6.25,** Divine Service and Songs by the N.C.R.V. Womens' Choir. **7.25** till Close Down, K.R.O. Programme. **7.25,** Talk. **7.50,** Football Results. **7.55,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen; Soloist: A. Moszkovsky (Violin): Overture, Egmont (Beethoven); Concerto for Violin in D, Op. 61 (Beethoven). **8.40,** News Bulletin. **8.45,** Violin Solos by A. Moszkovsky. **9.10,** Agricultural Talk. **9.40,** Concert (contd.): Overture, La belle Hélène (Offenbach); Selection from The Count of Luxembourg (Lehár). **9.55,** News Bulletin. **10.0,** Concert (contd.): Selection from A Waltz Dream (O. Straus); Minuet (Boccherini); N.E.O. March (Maas). **10.20,** Epilogue by the Choir. **10.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres;** 8.5 kW. **8.57 to 11.40 a.m.,** Programme of the Workers' Radio Society (V.A.R.A.). Relay of the Socialist Congress at Nymegen; Addresses by J. Albarda and A. Kleerekoper. **11.40 to 4.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.40,** Time Signal. **11.41,** Concert by the Wireless Orchestra, conducted by Nico Treep, and a Mixed Choir, conducted by Jacob Hamel; Soloists: Die Moorlag (Soprano), and Johan Nelissen (Baritone): March, Stars and Stripes (Sousa); Oriental Suite (Popy); Mirians Siegesgesang (Schubert); Paysage d'automne (Waldteufel); La danza (Rossini); Schön Ellen (Bruch); Slav Dance (Dvorák); March Potpourri (Ciere). **1.25 p.m.,** Book Review. **1.55,** Running Commentary on the International Football Match, Holland v. Hungary. **3.40,** Popular Music on Gramophone Records. **4.25,** Light Music on Gramophone Records. **4.40,** Programme of the Workers' Radio Society (V.A.R.A.). Programme for Children. **5.40 to 7.40,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). **5.40,** Review of New Books. **6.10,** Concert by the Amsterdam Vocal Quartet. **6.25,** Divine Service and Songs by a Vocal Quartet. **7.25,** Vocal Quartet Concert **7.40** till Close Down, A.V.R.O. Programme. **7.40,** Time Signal. **7.41,** News Bulletin. **7.55,** Concert by the Wireless Orchestra, conducted by Nico Treep; Soloist Hermann Leijdensdorff (Violin). **8.40,** Recitations. **9.0,** Concert by the Wireless Orchestra, conducted by Nico Treep; Soloist: Hélène Cals (Soprano). **9.40,** Recitations. **10.0,** Concert by Kovacs Lajos and his Orchestra, with Songs by Bob Scholte. **10.40,** Variety Music on Gramophone Records. **10.55,** Orchestral Concert (contd.). **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

MARCH 5th SUNDAY *continued*

LANGENBERG

473 metres; 60 kW.—**10.30 a.m.,** See **Leipzig. 11.0,** Talk: Missionary Work in South West Africa. **11.20,** The World on Gramophone Records—In Southern Tyrol. **11.45,** Talk: The Music of the Week. **12 Noon,** Concert by the West German Chamber Orchestra, conducted by Spitz. **1.30 p.m.,** Shorthand Dictation. **1.50,** Astronomical Talk. **2.25,** Chess Lesson. **2.50,** Talk for Gardeners. **3.10,** Extracts from Books and Periodicals for Women. **3.30,** Orchestral Concert, conducted by Kuhn. Festliche Musik (Brandts-Buys); Overture, The Barber of Bagdad (Cornelius); Tone Pictures from Tristan and Isolde (Wagner-Hoffmann); Invitation to the Dance (Weber-Berlioz); Selection from Der Kuhreigen (Kienzl); Ballet Music from Rienzi (Wagner); Waltz, Seid umschlungen, Millionen (Strauss). **5.0,** Variety Programme. **5.45,** Sports Notes. **6.0** till Close Down, See **Berlin (Witzleben).** In the interval at **9.0,** News and Sports Notes.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN, 319 metres.**—**10.30 a.m.,** Ich bin vergnugt mit meinem Glücke—Cantata (Bach), by the Municipal and Gewandhaus Orchestras, the Choir of St. Thomas, and Soloists. **11.0,** Concert by the Dresden Philharmonic Orchestra. **1 p.m.,** Weather and Time. **1.5,** Programme Announcements. **1.25,** Agricultural Notes. **1.35,** 'Cello and Pianoforte Recital by Walter Schilling and Hedwig Meyer: Seven Variations for 'Cello and Pianoforte on Themes from Mozart's Magic Flute (Beethoven); Sonata in C, Op. 102, No. 1 (Beethoven). **2.10,** Reading: Happy Childhood (Marianne Handel). **2.50,** Ludwig Thuille Song Recital by Ellen Beck (Soprano): In goldener Fülle; Devotionale; Des Narren Regenlied; Der Spinnerin Lied; Ich wollt ein Sträusslein binden; Lied der jungen Hexe; Spinnerlied; Komm, süsser Schlaf; Die Insel der Vergangenheit. **3.25,** Humorous Dialogues: Little Comedies of Love. **4.45,** Concert by the Dresden Soloists' Ensemble, with Flute Solos by Fritz Rucker: Minuet and Allegro vivace from String Quartet No. 3 in E Flat (Mozart); Flute Solos: (a) Tambourin (Hasse), (b) Gavotte (Gossek), (c) Minuet, Der Kanarienvogel (Mozart); Scene from the Section Act of Das Nachtlager in Granada (Kreutzer); Piece for Flute and Pianoforte (Theodor Blumer): (a) Ständchen from Op. 54, (b) Fuchsjagd and Flug der Vögel from Aus der Tierwelt, Op. 57a; Waltz, Die guten, alten Zeiten (Jos. Strauss). **5.30,** Harry Langewisch reads from Der Göttliche Ruf (S. Finkk). **6.0,** Programme from **Berlin** (Witzleben). In the interval at **9.15,** News.

LINZ.—See **Vienna.**

MADRID

ARANJUEZ, EAQ, 30.43 metres; 20 kW.—**10.30,** Variety Concert. **10.45,** Humorous Talk. **11.0,** Variety Concert (contd.). **11.35,** Talk. **11.40,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—**8.0 to 9.0 a.m.,** Topical Review. **2.0 p.m.,** Chimes from the Cathedral, Time Signal, Theatre Notes, and Concert by the Artys Orchestra. **4.0 to 7.0,** Interval. **7.0,** Chimes and Dance Music relayed from the Ritz Hotel. **7.30** (in an interval), Agricultural Talk. **8.30 to 9.30,** Interval. **9.30,** Chimes and Time Signal. **9.35** (approx.), Concert. Part I: Pianoforte Recital by Margarita Albert: Sonata in D (Haydn); Le concon (Daquin); Berceuse (Chopin); Fantaisie—Impromptu (Chopin); La maja y el ruiseñor from Goyescas (Granados). Part II: Interlude by Ramon Gomez de la Serna. Part III: Song Recital by Maria Lluch: Der Erlkönig (Schubert); Heidenröslein (Schubert); Ave Maria, from Othello (Verdi); Peteneras, from La Marchenera (Moreno Torroba); Leyenda de la gondolera, from Las hilanderas (Serrano); Nana (Falla). **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**3.10 p.m.,** Popular Concert by the Station Orchestra, conducted by B. Tyrdy. **4.30 to 5.45,** See **Prague. 6.0,** See **Prague. 6.15,** Military Band Concert. **7.10,** See **Prague. 10.0** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres,** and **Nürnberg, 239 metres.**—**10.30 a.m.,** See **Leipzig. 11.0,** Wind Instrument Concert. **12.5 p.m.,** Time, Weather and Programme Announcements. **12.15,** Agricultural Talk. **12.35,** Gramophone Concert of Romantic Music. **1.30,** Elementary Chess Lesson. **2.15,** Talk for Women. **2.35,** Concert by the Augsburg Concert Orchestra, conducted by Gustav Heuer. Soloist: Isabella Schnitz (Violin). **3.45,** Topical Talk. **4.5,** The Seven Deadly Sins—Three One-Act Plays from a Cycle (Franz Krarewitter). **5.10** (from **Nürnberg**); Concert of Chamber Music by the Horvath Quartet: String Quartet in D (Mozart); Quartet Movement in C minor (Schubert). **6.0,** See **Berlin (Witzleben). 9.0** (approx.), News. **9.15,** Concert of Light Music from **Berlin (Witzleben).**

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredriksstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres;** and **Rjukan, 447.1 metres.**—**9.15 a.m.,** Weather Forecast and Road Report. **10.0,** Divine Service, relayed from the Castle Chapel. **2.0 p.m.,** Running Commentary on the International Ski-jumping Championship, relayed from Holmenkollen. **4.0,** Concert, conducted by M. Backe, relayed from the Grand Hotel: Overture, The Merry Wives of Windsor (Nicolai); Schatzwalzer (Joh. Strauss); Selection from La Bohême (Leoncavallo); Gavotte and Minuet from Manon (Massenet); Intermezzo and Barcarolle from The Tales of Hoffmann (Offenbach). **5.0,** Talk on Hans Adolf Brorsom—the Psalm Writer, relayed from **Stavanger (240.6 metres). 5.30,** Recitations in German. **6.0,** Parliamentary Notes. **6.15,** Weather and News. **6.30,** Pianoforte Recital. **7.0,** Time Signal. **7.1,** Talk on the Skiing at Trysil. **7.30,** Concert of Popular Music by the Station Orchestra. **8.40,** Weather and News. **9.0,** Topical Talk. **9.15,** Songs and Humorous Review of the Week. **9.45,** Dance Music on Gramophone Records. **11.0** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—**9.25 a.m.,** Bible Reading. **9.40,** Sacred Music. **10.5,** Agricultural Talk. **11.45,** Giornale Radio. **12 Noon to 1.0 p.m.,** Concert. In the intervals at **12.30 p.m.,** Time, Announcements, and Weather. **4.30 to 5.30,** Popular Music on Gramophone Records. **7.0,** Dopolavoro Notes and Giornale Radio. **7.20,** Sports Notes. **7.30,** Time and Announcements. **7.45,** Symphony Concert, conducted by A. La Rosa Parodi. Soloist: Gabriella Scala (Pianoforte). Symphony No. 2 in D (Brahms); Suite No. 3 for Strings (Respighi); Toccata for Pianoforte and Orchestra (Respighi); Three Symphonic Sketches, La mer (Debussy). In an interval, Reading. After the Concert, Art Notes. **9.0** (approx.), Variety Songs. **9.55,** News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**12.30 p.m.,** Concert relayed from **Paris (Ecole Supérieure) (447.1 metres). 1.0 to 2.0,** Concert by the Rex Orchestra. **5.45,** Le Journal Parlé. **6.45,** Programme for Children. **7.20,** Weather Report. **7.30,** Gramophone Concert. Part I—Music by Victor Massé. Part II—Light Music. **9.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**9.45 a.m.,** Bible Reading. **10.0,** News. **10.5,** Sponsored Concert. **11.5,** Film Stars—Sponsored Programme. **11.40,** Sponsored Gramophone Concert. **12.15 p.m.,** Sponsored Concert. **12.45,** Half an Hour of Fantasy by Paul Weill. **1.15,** Interval. **1.30,** Sponsored Programme. **2.0 to 6.45,** Interval. **6.45,** Journal Parlé. **7.0,** Sports Notes. **7.15,** Popular Music on Gramophone Records. **7.30,** Catholic Review. **8.0,** Interval. **8.15,** Chamber Music. **8.45,** Interval. **9.0,** Concert. **9.45,** Interval. **9.50,** Orchestral Concert. **10.50,** News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—**7.45 a.m.,** Gramophone Records. **8.0,** Press Review and Weather. **8.30,** Physical Culture. **10.0,** Elementary Bookkeeping Lesson. **10.20,** Advanced Bookkeeping Lesson. **10.40,** Spanish Lesson. **11.0 to 11.30** Interval. **11.30 to 12 Noon,** Programme in English by the I.B.C. Concert of Imperial and Broadcast Records. Mr. T. St. A. Ronald announcing. Songs from the Shows, Part II, by the Embassy Musical Comedy Company with Orchestra and Compère; Don't say Good-bye, from Wild Violets (Stolz), by Tom Burke; Fiddler Joe, by Leslie Holmes; Linger a little Longer in the Twilight, by Bidgood's Novelty Accordion Band; San, by Red (Pepper) Sam with Pianoforte and Ukelele Accompaniment; Hits from The Big Broadcast, Part II, by Ned Fox's Film Fans, with Vocal Refrain; I may never pass your Way again, by Morton Downey (Tenor); Waltz, A Little Street where old Friends meet, by Jack Payne and his Band with Vocal Chorus. **12 Noon,** Religious Address. **12.20 p.m.,** Sacred Music. **12.30,** Bilboquet moves in. **12.45,** Press Review. News and Weather. **1.0,** Concert of Light Music. **1.30 to 5.0,** Programme in English by the I.B.C. **1.30,** Gramophone Records. Silence, by the Russian Gipsy Vagabonds; How deep is the

Ocean? by the Southern Sisters; Butterflies in the Rain, by Maurice Winnick and his Orchestra; Please, by Bing Crosby; A Boy and a Girl were dancing, by Sam Browne and his Accordion; Street of Dreams, by Guy Lombardo and his Royal Canadians; Time on my Hands, by Connie Boswell; Passion Flowers, by Bobby Brown and his Accordion Band; Can't we meet again, by Jack Hylton and his Orchestra; Play, Fiddle, Play, by the Street Singer; Wheezy Anne, by Roy Fox and his Band; The Rosary, by Donald Novis (Tenor); Amoureuse, by Armand Crabbe (Baritone); What more can I ask? by Eric Bertner (Tenor); In Santa Lucia, by Lew Stone and the Monseigneur Band; Her Name is Mary, by Harold Ramsey at the World's Mightiest Wurlitzer Organ at the Granada Cinema, Tooting; Look what you have done, by Ozzie Nelson and his Orchestra; Sitting on the Ice in the Ice Rink, by George Formby (Comedian); April Showers, by Al Jolson, with Guy Lombardo and his Royal Canadians; Bless this House, by Frank Titterton (Tenor); Try a little Tenderness, by Bing Crosby; The Stars were shining, by Franz Volker (Tenor); Take me away from the River, by Maurice Elwin; Selection from Samson and Delilah (Saint-Saëns), by the Grand Symphony Orchestra, conducted by Manfred Gurlitt. **3.0,** Concert. March, Colonel Bogey (Alford); Selection from The Mikado (Sullivan), The Last Waltz (O. Straus); Wonder Bar (Katscher); The Gondoliers (Sullivan); The Girl in the Taxi (Gilbert); and The Maid of the Mountains (Fraser-Simpson). **3.30,** Concert of Light Music. Nobody else but Elsie; Some one to care for; Gipsy Air; The Two Guitars; Rumba, African Lament; Moonlight on the Riviera; Rainbow; Brighter than the Sun. **4.0,** Tea-Time Variety Hour. Mr. S. H. C. Williams announcing. **5.0,** Concert by the Radio Orchestra. **5.30 to 8.0,** Programme in English by the I.B.C. **5.30,** Variety Hour. Announcer, Mr. Glynne Williams. Foundation Member No. 20 of the International Broadcasting Club. **6.30,** Concert of Light Music: You're telling me; Love is the Sweetest Thing; Nina Rosa; First Waltz (Nicholls); Martha; Tap your feet. **7.0,** Film Fans Hour, Mr. S. H. C. Williams announcing. **8.0,** Radio Paris Music Hall. The Station Orchestra, conducted by Maurice André. Soloists Mme. La Regia and M. Léjal. In the intervals at **8.30,** News, Sports Notes, and Weather, and at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres;** and **25.27 metres.**—**9.0 p.m.,** Temple of Song, from **New York.** **9.30,** Vesper Services from Shadyside Presbyterian Church. **10.30,** Pages of Romance, from **New York.** **11.0,** Sealed Power, from **New York.** **11.30,** Time Signal. **11.31,** Weather Report. **11.32,** Teaberry Sport Review. **11.37,** Press News Reeler. **11.42,** Strange Facts. **11.44,** Temperature Report. **11.45,** Programme to be Announced. **12 Midnight,** Time Signal and Programme to be Announced. **12.30 to 3.45 a.m. (Monday), New York** relay. **12.30,** Great Moments in History. **1.0,** L'Heure Exquise. **1.30,** Mexican Symphonic Marimba Orchestra. **2.0,** Twenty Thousand Years in Sing Sing. **2.30,** Walter Winchell. **2.45,** Mary Steele. **3.0,** D. W. Griffith's Hollywood. **3.15,** Real Silk. **3.45,** Westinghouse Glee Club. **4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.15,** Press Last Minute News. **4.20,** Alexander Roy (Tenor). **4.30,** Jesse Crawford (Organist), from **New York.** **5.0,** Time Signal and Goodnight.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**11.0 a.m.,** Chimes. **11.5,** Military Band Concert, conducted by Jan Pesta. **12.30 p.m.,** Agricultural Report. **1.0,** Agricultural Programme. **1.15,** Talk for Workers. **1.25 to 3.0,** Interval. **3.0,** Talk: The Masaryk Anti-Tuberculosis League. **3.10,** See **Moravská-Ostrava.** **4.30,** Talk by Dr. Hubert Slouka. **4.45,** Variety Music on Gramophone Records. **5.0,** German Transmission: Scenes from Student Life, based on a Russian Drama by Andrejev, with Music by the Station Orchestra. In the Interval, News in German. **6.0,** Reading. **6.15,** See **Moravská-Ostrava.** **7.10,** Dialogue (Courteline). **7.35,** Accordion Duets by M. Mracekova and G. Rambarterova. **8.0,** Time Signal. **8.1,** Concert of Music by Pilsen Composers, relayed from **Pilsen:** Conductor: E. Knuppers: Symphonic Poem (Palla); Three Pieces (Kubat); (a) Romance, (b) Slovak Song for Violin and Orchestra, (c) Minuet; Symphonic Poem, Confiteor (Brtovsky); Overture, Op. 3 for Orchestra (Janacek). **9.0,** Time Signal. **9.1,** News Bulletin. **9.20,** Jazz on Two Pianofortes by E. Schulhoff and O. Let'us. **10.0** (approx.). Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.**—**8.55 a.m.** (from **Lausanne**), Chimes. **9.0** (from **Geneva**), Protestant Service, relayed from the Oratory. **10.0** (from **Geneva**), Popular Music on Gramophone Records. **11.0** (from **Geneva**), Readings. **11.30,** News Bulletin and Weather Forecast. **11.40** (from **Geneva**), Light Music on Gramophone Records. **1.0 to 1.45,** Interval. **1.45 p.m.** (from **Geneva**), Concert by the Municipal Band, conducted by M. Ludwig and the Harmonie nautique Choir, relayed from the Victoria Hall. **4.30 to 5.30,** Interval. **5.30** (from **Lausanne**), Catholic Service. **6.0** (from **Lausanne**), Violin and Pianoforte Recital. **6.40** (from **Lausanne**), Sports Notes, News and Announcements. **7.0** (from **Geneva**), Song Recital by Mme. Violette Andréossi. In the interval, Melodies (Dupare). **7.35** (from **Geneva**), Reading. **7.45,** Concert by the Station Orchestra. **9.0,** News and Weather. **9.15** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres;** and **2RO, 25.4 metres.**—**9.10 a.m.,** News, Sports Notes, and Amusement Guide. **9.30,** Agricultural Notes. **9.45,** Bible Reading. **10.0 to 11.0** and **11.30 to 1.30 p.m.,** See **Turin.** In an interval at **12 Noon,** Time and Announcements. **2.45 (Naples),** Programme for Children, Weather and Sports Notes. **3.0,** Football Results. **3.15 to 5.30,** Orchestral Concert, with Songs. Sports Notes in the interval. **6.30,** Sports Notes, Football Results, Dopolavoro Notes and News. **7.0,** Time and Announcements. **7.30,** Sports Notes. **7.45,** L'amore tra i pampini (Love among the Vine Leaves) Operetta in Three Acts (Giulio de Micheli). In the intervals, Talk and Theatre Notes. News after the Operetta.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**7.0 p.m. to 12.30 a.m. (Monday), New York** relay. **7.0,** International Radio Forum. **7.15,** Clyde Doerr and his Saxophone Octet. **7.30,** Moonshine and Honeysuckle. **8.0,** Wayne King's Orchestra. **8.30,** Hour of Worship. **12 Midnight,** Borrah Minevitch and his Harmonica Rascals. **1.15 a.m.,** Wheatena Ville—Sketch with Ray Knight. **12.30,** Horse Sense Philosophy. **12.45 to 2.30, New York** relay. **12.45,** Smith Brothers' Programme. **1.0,** Chase and Sanborn Hour. **2.0,** General Electric Sunday Circle Concerts. **2.30,** American Album of Familiar Music and Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE, 244.1 metres;** and **BERNE, 245.9 metres.**—**9.0 a.m.,** (from **Basle**), Catholic Address. **9.45** (from **Basle**), Chamber Music on Historic Instruments. **10.30** (from **Basle**), Bernhard Moser reads from his own Works. **11.0,** Concert by the Radio Orchestra. **11.28,** Time and Weather. **11.30,** News Bulletin. **11.40,** Concert by the Radio Orchestra. **12.30 p.m.** (from **Basle**), Concert by the Alpengruss Ländler Band, conducted by Jules Bohrer. **1.30 to 2.30,** Interval. **2.30** (from **Basle**), Zither Duets by Lindenmaier and Fischer. **3.0,** Italian-Swiss Programme. **3.35,** Italian Folk Music on Gramophone Records. **4.0 to 5.30,** Interval. **5.30** (from **Basle**), Talk in Italian: Leonardo da Vinci as a Scientific Genius. **6.0,** Time, Weather, and Sports Notes. **6.15** (from **Basle**), Talk: Tendencies of the Day. **6.45** (from **Basle**), Talk on the following Transmission. **7.0** (from **Basle**), Tiefland—Opera in Two Acts and a Prelude (d'Albert). In the interval at **8.30,** Weather and News. **9.30,** Sports Notes and Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.**—**10.0 a.m.,** Divine Service. **11.45,** Weather. **1.0 p.m.,** Choral Concert, conducted by Emil Carelius, relayed from the Royal Academy. Soloists: Karl Schylling and Knut Ohrström. **2.0,** Provincial Programme. **2.30,** Programme for Children. **3.0,** Dialogue on Alcohol. **3.45,** Variety Music on Gramophone Records. **4.30,** Talk. **5.0,** Evensong. **6.30,** Orchestral Concert, relayed from **Halsingborg, 232.2 metres.** Conductor, Olof Lidner. Soloist: Birgit Engell. Second Symphony in B Flat (Schubert). Songs: Aria from Acis e Galatea (Handel),

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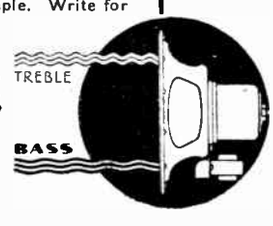

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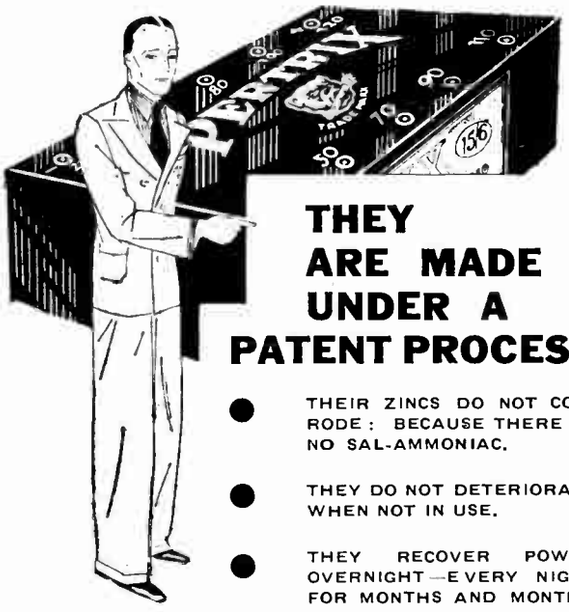

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(b) Aria from Il re pastore (Mozart); Marosszeker Tänze (Kodály); Three Songs (Mahler); Carneval de Paris (Svendsen). **8.0,** Radio Play (Kjellgren). **9.0,** Concert of Chamber Music, relayed from **Goteborg.** Conductor: Tor Mann. Soloist: Heinz Fremlenthal (Viola). Introduction for String Orchestra (Roman); Three Pieces for String Orchestra (Boccherini); Concertino for Viola and Orchestra (Gerster); Serenade for String Orchestra (Elgar). **10.0** (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—9.30 a.m., Orchestral Concert, conducted by Maurice de Villers: Overture, Undine (Lortzing); Waltz from Eugène Onegin (Tchaikovsky); Orchestral Suite from Izeyl (Pierné); Selection from Rigoletto (Verdi); Slav Dances Nos. 1 and 3 (Dvorák); Ballet égyptien (Luigini); Divertissement on Russian Songs (Rabaud); French March (Filipucci). **10.45,** Protestant Service, relayed from St. Stephen's Church, Mulheim. **11.30,** Catholic Service Relay. **12 Noon,** Gramophone Concert of Classical Music. **12.45,** News. **1.0 p.m.,** Time, and Light Music on Gramophone Records. **2.0,** Talk: Hygiene and Domestic Animals. **2.30,** Concert, relayed from **Paris. 4.30,** Pasdeloup Symphony Concert, relayed from the Théâtre des Champs-Elysées, Paris. **6.45,** Medical Talk in French. **7.0,** Sports Notes. **7.15,** Popular Music on Gramophone Records. **7.30,** Time, News, and Sports Notes. **7.45,** Divine Service Relay in German. **8.30,** Lottery Results. **8.45,** Dramatic Programme: A Bord—Radio Sketch (Claude Orly); Ce qu'ils font de nos femmes—Comedy in One Act (Claude Orly); Six mois de calme—Comedy in Three Acts (Jean Boyd-deux). **10.30,** Jazz Music, relayed from the Savoy. **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER; 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.—10.30 a.m.,** See **Leipzig. 11.0** (from **Freiburg**), Concert by the Freiburg Concert Orchestra conducted by Richard Fried. Soloist: Julius Weismann (Pianoforte). **12 Noon** (from **Freiburg**), Handel-Haydn-Mozart Concert by the Freiburg Chamber Orchestra, conducted by Heinrich Pfaff. Soloists: Marga Wihler-Spiess (Violin) and Hugo Stoffel (Viola). Concerto for Viola (Händel); Symphony No. 18 in F Sharp Minor (Haydn); Concertante Symphony for Violin and Viola with Orchestral Accompaniment (Mozart). **1.0 p.m.,** Agricultural Talk. **1.30,** Extracts from Parsifal—Opera (Wagner) on Gramophone Records. **2.30,** Programme for Young People: Chronik des Pizarro—a Radio Play in Verse (Otto Rombach). **3.30,** Organ Recital of Old Music, relayed from the Christaskirche, Mannheim. **4.30,** Choral Concert of Lenten Music, relayed from the Church of St. Francis, Pforzheim: Part I—Music by Palestrina: O bone Jesu; O Domine Stabat Mater and Adoramus. Part II: Tantum ergo; Tenebrae factae sunt (Michael Haydn); Old Passion Song. Gethsemane; Seventeenth Century Choral: Das Leiden des Herrn; O Haupt voll Blut und Wunden (Bach); O Christi Wunden rot (Schweitzer). **5.0,** Sports Report. **5.20,** Running Commentary on the Rifle Shooting Competitions, relayed from Buchenbach. **6.0** till Close Down, See **Berlin (Witzleben).** In the interval at **9.0,** Time, Weather, News, Programme Announcements and Sports Report.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW. —12.15 p.m., News Bulletin. **12.30,** Catholic Service. **1.0,** Orchestral Music. **1.15,** Operetta Music. **1.30,** Viennese Music. **1.40,** Agricultural Report. **1.45,** Protestant Service. **2.15,** News. **2.20,** Orchestral Music. **2.30,** Manon—Opera in Five Acts (Massenet). In the intervals, News and Racing Results. **5.15,** News and Racing Results. **5.30,** Dance Music. **6.0,** News. **6.15,** Popular Songs. **6.30 to 7.0,** Programme in English by the I.B.C.: Henly Concert of Dance Music; Sweethearts of Yesterday; It's the darn'dest thing; Singin' the blues; I'll never be the same; As long as Love lives on; If I could be with you; Shine; When day is done. **7.0,** Light Music. **7.15,** Racing Results, Market Prices and News. **7.25,** Local News. **7.30,** Music by an Argentine Orchestra. **7.45,** Operetta Music. **8.0,** Light Music. **8.15,** Music by a Viennese Orchestra. **8.45,** Songs from Sound Films. **9.15,** Opera Music. **9.30,** Accordion Music. **9.45,** Three Pieces for Orchestra. **10.0,** Concert for Listeners in Morocco. In the interval at **10.15,** North African News. **10.30,** Popular Programme. **11.0 to 12 Midnight,** Programme in English by the I.B.C. **11.0,** Paget Song Recital. Selection from A Waltz Dream (O. Straus). Songs: (a) Love will find a way, from The Maid of the Mountains (Fraser-Simpson), (b) You are my Heart's Delight, from The Land of Smiles (Lehár); Ol' Man River, from Show Boat (Kern); Song of the Vagabonds, from the Vagabond King (Friml); Songs: (a) Just two Hearts (Stolz), (b) Bohemia (Rubens); The Skaters' Waltz (Waldteufel). **11.30,** Songs: Ma curly-headed Babby; I want your Heart; Song of Songs; Old Time Potpourri; Bird Songs at Eventide; Trees; Minuet from Berenice (Handel). **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Monday),** Military Music. **12.15,** Jazz. **2.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—8.40 a.m., See **Turin. 8.55,** Mass from the Cathedral of San Giusto. **10.0 to 10.20,** Agricultural Talk. **11.0** till Close Down See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.—8.40 a.m.,** Giornale Radio. **8.55 to 9.40,** Interval. **9.40,** Agricultural Talk. **10.0,** Mass from the Church of the Annunciation, Florence. **11.0 to 11.15,** Bible Reading. **11.30,** Orchestral Concert conducted by Ugo Tansini. In an interval at **12 Noon,** Time and Announcements. **12.30 to 1.30,** Orchestral Concert. **2.0,** Relay of an Opera. In the intervals, Giornale Radio and Sports Notes. **6.0,** Dopolavoro Notes. **6.5,** Variety Programme on Gramophone Records. In an interval at **6.30,** Time and Announcements. **7.0,** Giornale Radio, Sports Notes, and Light Music on Gramophone Records. **8.0,** Programme to be Announced. In the intervals, Talk, Notes on the Theatre, and Giornale Radio.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.—9.30 a.m.,** Brahms Song Recital by Hedda Knx (Soprano). **10.0,** Technical Wireless Talk. **10.30,** see **Leipzig. 11.0,** Talk by Archbishop Theodor Innitzer: The Catholic Conference of 1933. **11.10 to 1.10 p.m.,** Concert by the Vienna Symphony Orchestra, conducted by Max Schönherr: Overture, Les Cloches de Corneville (Planquette); Four Orchestral Melodies (Ambrosio): (a) Andantino, (b) Paysanne, (c) Ronde des lutins, (d) Tarantella; Piedmontese Dances (Smigaglia); Overture, Das Tal der Liebe (O. Strauss); Waltz, Freudengrüsse (Jos. Strauss); Entr'actes (Joh. Strauss) from: (a) Aschenbrödel, (b) Jakuba; Selection from Der arme Jonathan (Millöcker); Russian Dance from Tatjana (Lehar); Ballet Scene from Die Bachusnacht (Granichstaedten); Waltz, Leben und Lieben (Fall); Selection from Der Teufelsreiter (Kálmán). **2.0,** Time and Programme Announcements. **2.5,** Reading (Leo Weismantel). **2.30,** Chamber Music. **3.25,** Talk: Rambling in the South of France. **3.50,** Concert of Songs and Orchestral Music. **5.20,** Kurt Martens reads from his own Works, with Introductory Talk. **5.50,** Time, Programme Announcements and Sports Notes. **6.0,** see **Berlin (Witzleben). 9.0,** News Bulletin. **9.25,** see **Berlin (Witzleben).**

WARSAW

1,411 metres; 120 kW.—10.57 a.m., Time Signal and Bugle Call from the Tower of St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Weather Forecast. **11.15,** Concert by the Warsaw Philharmonic Orchestra, conducted by Casimir Wilkomirski: Soloists: E. Hegmert (Soprano) and W. Kochanski (Violin): Overture, Marya (Statkowski): Concerto for Violin and Pianoforte (Saint-Saens); Songs; Symphony in G minor (Maliszewski). In the interval, Talk. **1.0 p.m.,** Agricultural Notes. **1.20,** Light Music, relayed from **Katowice (408 metres). 1.40,** Agricultural Talk. **2.0,** Light Music (contd.). **3.0,** Programme for Young People. **3.25,** Popular Music on Gramophone Records. **3.45,** Talk on the Polish Language. **4.0,** Violin and Song Recital by E. Szalowska-Gedeonow and E. Maj (Baritone); Suite in A Minor for Violin and Pianoforte (Studing); Songs. (a) Don Juan's Serenade (Napravnik), (b) Aria from Dinorah (Meyerbeer), (c) Song from Hamlet (Thomas): Violin Solos: (a) Irish Song (arr. Kreisler), (b) Humoresque (Tchaikovsky), (c) Meditation (Glazounov), (d) Scherzo (Tchaikovsky); Songs: (a) Aria from The Haunted Castle (Moniuszko), (b) Aria from Verbum Nobile (Moniuszko), (c) Quand je traverse le Village (Malinowski), (d) Soldier's Song (Gail). In the interval, Announcements and News. **4.55,** Programme Announcements. **5.0,** Programme for the Eleventh Anniversary of the Pope's Coronation, relayed from the Town Hall. **6.0,** Miscellaneous Items. **6.25,** Dramatic Programme. **7.0,** Concert of Light Music by the Jurand Choir and the Odeon Orchestra. **8.5,** Concert by the Radio Orchestra, conducted by Oziminski: Soloist: I. Dowiat-Zapolska (Soprano); Polonaise in E Flat (Kurpinski); Berceuse (Marzynski); Selection from Manru (Paderevsky); Six Songs (Marzynski); Algerian Suite (Saint-Saens); Songs: (a) Two Arias from Lakme (Delibes), (b) Song from Louise (Charpentier); Walpurgis Night from Faust (Gounod). **9.55,** Aviation Weather Report and Police Notes. **10.0,** Dance Music.

ZURICH.—See **Schweizerischer Landessender.**

MONDAY
MARCH THE SIXTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	B.B.C. chamber concert. "Moonlight 'n Everything," a Pre-War Pierrot Potpourri.
LONDON REGIONAL	Famous ballads. Band concert. "Radio Scrapbook," collected by Leslie W. A. Baily.
MIDLAND REGIONAL	String orchestral concert from Queen's College, Birmingham.
NORTH REGIONAL	"Radio Scrapbook," by Leslie W. A. Baily.
WEST REGIONAL	Orchestral concert from the National Museum of Wales.
SCOTTISH REGIONAL	Recital of Jewish folk songs.

ABROAD

BERO-MUNSTER	7.30 p.m. Carnival programme with yodels and accordion solos. Songs to the lute and a Ländler Band.
BRUSSELS (No. 1)	10.10 p.m. Hott jazz, with commentary.
COPENHAGEN	8.30 p.m. Harpsichord solo: Suite No. 11, in C (Scarlatti).
LANGENBERG	7 p.m. Concert of light Viennese music, from Düsseldorf. 9.30 p.m. Serenade.
LEIPZIG	9.20 p.m. Light music by the Leipzig Symphony Orchestra.
ROME	4.30 p.m. Concert from the Royal Philharmonic Academy.
STRASBOURG	8.30 p.m. Five-year-old Josette Duriyaux (violin) in concert by the Cercle artistique de l'Est, from the Exchange, Nancy.

ATHLONE

413 metres; 60 kW.; and **GORK, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Grampophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** Talk on Poultry Keeping. **8.0,** Concert by the Station Orchestra. **8.20,** Tenor Solos by Patrick Kirwan. **8.30,** The House Next Door—Sketch by F. MacDonald and Company. **9.0,** The Station Orchestra. **9.15,** Mezzo-soprano Solos by Cecily Kenny. **9.30,** Traditional Fiddle Music. **9.45,** Tenor Solos by Patrick Kirwan. **9.55,** The Station Orchestra. **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert: Selection from Thaïs (Massenet); Minuet (Handel); Selection from The Tales of Hoffmann (Offenbach); A Wedding Day on Troldhangen (Grieg); Serenata (Staffelli); Waltz in A (d'Ambrosio). **7.0,** Request Gramophone Records. **7.20,** Sports Notes. **7.30,** Exchange Quotations and Talk in Catalan. **8.0,** Popular Music on Gramophone Records and News. **9.0,** Chimes from the Cathedral, Weather Forecast, and Market Prices. **9.5,** Humorous Review of the Week in Verse. **9.15,** Concert of Sardanas. **10.0,** Concert by the Station Orchestra. In an interval at **10.30,** Catalan News Bulletin; and at **11.0,** Press Review. **11.30,** Dance Music by the Melody Boys, relayed from the Excelsior Dance Hall. **12 Midnight** (approx.), Close Down.

BARI

270 metres; 20 kW.—**7.0 p.m.,** Agricultural Report, Tourist Notes, and Dopolavoro Announcements. **7.20,** Giornale Radio and Press Review. **7.30,** Time and Announcements. **7.35,** André Chenier—Opera (Giordano), on Gramophone Records. In the intervals, Talk and Notes on Art. News after the Opera.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—**3.0 p.m.,** Orchestral Concert: Overture, Beim Tanz (Urban); Aus Nisch und Umgebung (Brodil); Selection from The Tales of Hoffmann (Offenbach); Ballet égyptien (Luigini); Chair de lune (Ketelbey); Spanish Boston Waltz (Smatek). **4.0,** Dialogue in German. **5.55,** Time and Programme Announcements. **6.0,** Talk. **6.40,** Popular Music on Gramophone Records. **6.50,** Introductory Talk to the following Relay. **7.0,** Relay of an Opera from the National Theatre. In an Interval at **8.30** (approx.), News.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**2.0,** Talk for Women: Coming Fashions. **2.30,** Weather and Exchange. **2.45,** Review of Books. **3.0,** Educational Talk. **3.30,** Concert from **Berlin (Witzleben).** **4.10,** Talk: German Elections since 1912. **4.30,** Robert Franz Song Recital by Ingrid Brebeck (Soprano): Weisst Du noch?; Genesung; Auf dem Meere; Aus meinen grossen Schmerzen; Er ist gekommen; Gute Nacht; Frühling und Liebe; Widmung; Der Schmetterling ist in die Rose verliebt; Denk ich Dein!; Es hat die Rose sich beklagt; Mein Schatz ist auf der Wanderschaft. **5.0,** Talk on German Art. **5.30,** Making Music with Invisible Partners. **5.55,** Weather and Announcements. **6.0,** French Lesson. **6.30,** A Poem. **6.35,** Concert of Light Music by the Bohème Band, relayed from the Café Corso at the Zoo. **7.30,** Talk: The Strength of the Modern State. **8.10,** Contemporary Music for Chamber Orchestra. Conductor: Rudolf Schulz-Dornburg. Apollo musagètes (Igor Stravinsky); Jacob and Esau (Wagner-Esau); Music for Strings (Ludwig Weber); Spielmusik (Kurt Thomas); Tafelmusik (Erwin Lendvai). **9.10,** Weather, News and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Cigány Music from **Budapest.** **11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**2.35 p.m.,** Brahms Pianoforte Recital: Pianoforte Pieces, Op. 119, Intermezzi in B Minor, E Minor and C; Rhapsody in E Flat. **2.55,** Songs to the Lute—Recital by Walter Bartoschek. Kuriose Geschichte; Blume und Schmetterling; Sechse, Sieben oder Acht; Das Versehen; Das Wörtchen Ja (Walter Bartoschek); Drei küsse (Schmid-Kayser). **3.15,** Talk on Trees. **3.30,** Concert by the Ferdy Kauffmann Orchestra. A Humorous Suite, Emil and the Detective (Gray); Liebeslied (Schmalstich); Blues (d'Albert); Der Pan tanzt (Juel-Frederiksen); Waltz, Mein Ideal (Blon); Overture (Künnecke); Mein Herz (Pataky); Die Zigeuner (Königsberger); Potpourri of Viennese Music, Alt Wien (Pachernegg). **4.25,** Topical Talk. **4.45,** Talk for Young People. **5.5,** Violin Concerto, in E (Bach), by Arnold Hess and the Berlin Wireless Orchestra, conducted by Eugen Jochum. **5.25,** Talk: Literature and Early Death—Wilhelm Waiblinger. **5.45,** Talk on Music. **5.55,** The Witzleben Station informs its Listeners. . . . **6.0,** Topical Talk. **6.15,** Talk: Mankind and Politics. **6.40,** Help for the Unemployed—Talk by Friedrich Syrup. **7.5,** Sehnsucht. Op. 40 (George Schumann), relayed from the Singakademie. The Singakademie Choir and the Berlin Philharmonic Orchestra. Conductor: The Composer. **7.25,** Concert of Light Music and Dance Music by Hans Bund and his Jazz Orchestra. **8.25,** Announcements. **8.30,** Der jüngste Tag—Oratorio (Otto Jochum), relayed from the Singakademie. The Berlin Philharmonic Orchestra, conducted by Prof. Georg Schumann, the Berlin Singakademie Choir, Henny Wolff (Soprano), André Kreuchauff (Tenor), Fred Drissen (Baritone), and Wilhelm Guttmann (Bass-Baritone). **9.10,** Weather, News and Sports Notes, followed by Dance Music from the Europa Pavilion. **11.0** (also on **Zeesen, 31.38 metres**), Schlageter—Play (Hans Johst), on Gramophone Records.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—**7.30 p.m.,** News Bulletin, Exchange Quotations and Market Prices. **7.40,** Talk: Bordeaux a Century Ago. **7.55,** Lottery Results. **8.0,** Talk on Hygiene. **8.15,** Charades. **8.20,** News, Exchange and Weather Forecast. **8.30,** Concert by a Symphony Orchestra and Soloists.

BRATISLAVA

279 metres; 11 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by F. Dyk: Rhapsody in A Minor (Dvorak); Selection from The Sunken Bell (Respighi); Petite Suite (Debussy). **4.10,** See **Prague. 4.50,** Light Music on Gramophone Records. **5.0,** Chamber Music by the Station String Quartet: Quartet in G, Op. 8 (Fibich); Quartet in D, Op. 35 (Novak). **6.0,** See **Prague. 6.10,** Music Review. **6.25,** See **Prague. 6.10,** See **Brno. 7.45,** See **Prague 8.0,** See **Brno. 9.0,** See **Prague. 9.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.—12.10 p.m.,** Sound Film Music on Gramophone Records. **12.45,** Time, Weather, News, Exchange and Shipping Notes. **1.5,** Gramophone Concert. Tone Poem, Finlandia (Sibelius); Quartet from Rigoletto (Verdi); Scherzo from The Tale of Czar Saltan (Rimsky-Korsakov); Polonaise in A Flat, Op. 53 (Chopin); Song, Ich liebe dich (Beethoven); Waltz of the Hours and Czardas from Coppélia (Delibes); Vergebliches Ständchen (Brahms); Daisy Waltz (Dacre). **1.45,** Programme arranged by the Post Office with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Book Review. **3.0,** Reading: Happy People (Hoffer Reichenau). **3.20,** Orchestral Concert, conducted by Paul Händler. March of the South-West African Cavalry (Reuss); Overture, Ika (Doppler); Selection from The Cricket on the Hearth (Goldmark); Waltz from Eva (Lehár); Two Little Pieces (Forster-Tavan); Idyll, Dämmerstündchen; Serenade for Strings (Tellam); Two Rosenlieder (Eulenburg); Potpourri, Servus Wien (Dostal). **4.30,** Agricultural Prices. **4.35,** Two Talks: (a) Newton's Discovery of the Law of Gravitation, (b) The Heavens in March. **5.0,** Talk by Dr. Hans Jung. **5.20,** English Lesson. **5.40,** Topical Talk. **6.0,** Dialogue: Theory and Practice—School and Life. **6.30,** Weather and Market Prices. **6.35,** Concert from **Leipzig. 7.30,** Die Grottkaner Vesper—a Sequence of Old Silesian Folk Songs, Op. 14 (Friedrich Koschinsky). The Station Choir, the Station Orchestra and Soloists. **8.20,** News Bulletin. **8.30,** Instrumental Concert with Henri Marteau. Partita for Flute and Viola (Marteau); Divertimento in B Flat for Two Violins, Viola, 'Cello, Bass and Two Horns (Mozart). **9.30,** Time, Weather, News, Sports Notes, Market Prices and Programme Announcements. **9.55,** Answers to Correspondents on Technical Questions. **10.5,** Talk: The Southern Part of the Black Forest. **10.20** (approx.), Close Down.

BRNO

342 metres; 35 kW.—**5.0 p.m.,** Talk on Gymnastics and Sport. **5.15,** See **Prague. 5.25,** German Transmission: News, French Lesson for Beginners and Talk on Chemistry. **6.0** See **Prague. 6.25,** Hungarian Fantasia, Op. 26 for Flute (Hoppler). **6.40,** Concert of Old Songs. **7.45,** See **Prague. 8.0,** Dramatic Programme. **9.0,** See **Prague. 9.15,** Talk in Esperanto on President T. G. Masaryk as a Philosopher, with Readings from his Works. **9.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—**12 Noon,** Gramophone Concert: Selection from Mignon (Thomas); Hungarian March (Berlioz). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans. French Comedy Overture (Kéler-Béla); Petite Suite (Chaminade); Sardana, Minyoneta (de Sévérac); Minuet from the Concerto for 'Cello (Saint-Saëns); Selection from Le Petit Duc (Lecocq); Russian Fantasia (Douliez). **2.0,** Educational Programme. **5.0,** Dance Music from the St. Sauveur Palais de Danse. **6.0,** Talk: The Linen Industry. **6.15,** Gramophone Records: Kinderszenen for Pianoforte (Schumann); Rondo (Popper). **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Titus (Mozart); Adagio (Mendelssohn); Romance (Sibelius). **6.45,** A Good Nurse—Radio Sketch (Lauville). **7.0,** Concert (contd.): Divertissement Rhapsodique (Leemans); Serenade (Samazeuilh); Madrigal (Gaubert). **7.15,** Talk: Political Parties in Europe. **7.30,** Theatre and Cinema Review. **8.0,** Concert by the Radio Orchestra, conducted by Franz André. Soloists: Mme. Marville and M. de Gerlor (Songs) and M. Steurs (Accordion); Chinese March (Demaele); Vibraphone Solo, Romance vibraphone (Löhr); Le coup du sort (Lenoir); Parlez-moi damour (Lenoir); Onestep, The Great Four (Robrecht). **8.15,** Variety Programme. **8.45,** Concert (contd.): Marche baroque (Goyens) Tango, Oh Donna Clara (Petersbursky); M. de Gerlor in his Repertoire; Walloon Airs (Wangermée); Songs (Gonbier): (a) Le mendiant d'amour, (b) Que ne peut-on rêver toujours?; Waltz, La petite de Montparnasse (Wachsmann); Foxtrot, Love me to-night (Brown); M. de Gerlor in his Repertoire; Rumba, Azor (Gabaroche); Foxtrot, Antoinette (Oberfeld); Sur l'derrière de l'opéra (Scotto). **10.0,** Le Journal Parlé. **10.10,** Hot Jazz with Commentary. **10.30,** Light Music on Gramophone Records. **11.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Concert of Italian Music by the Station Orchestra, conducted by P. Leemans: Overture, Norma (Bellini); Selection from The Barber of Seville (Rossini); Prelude and Allegro for Violin (Pugnani-Kreisler); Paraphrase on Themes from Rigoletto (Verdi-Liszt); Intermezzo from Cavalleria rusticana (Mascagni); Minuet (Bolzoni); Selection from Il Carillon magico (Pick-Mangiagalli); March from Aida (Verdi). **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert: Overture, La Chasse du jeune Henri (Méhul); Selection from L'Africaine (Meyerheer); Selection from I Pagliacci (Leoncavallo); 'A Vicchella (Tosti); Potpourri, Fortissimo (Kálmán); Hymn (Bellando de Castro); O Sole mio (Di Capua); Ballet Music from Les Deux Pigeons (Messager). **2.0,** Educational Programme. **5.0,** Concert by the Radio Orchestra, conducted by Mr. André. **5.45,** Programme for Children. **6.30,** Gramophone Records: Marche du Seizième de Ligne (Mees); Slav Dance No. 2 (Dvorák-Kreisler); Sevilla (Albeniz); Russian Gipsy Song; Mazurka Fantasia (de Nattes); Polka, Myrto (Petit); Selection from The Fair at Sorotschinsk (Mussorgsky); Spanish Dance No. 4 (Sarasate); March; Serenade in B Flat (Schubert-Liszt); Sérénade passionnée (Silesu). **7.15,** Talk: Lepers in the Belgian Colonies. **7.30,** Le Journal Parlé. **8.0,** Concert by the Symphony Orchestra, conducted by Arthur Meulemans: Overture, Euryanthe (Weber); Selection from Tannhäuser (Wagner); Overture, Carnaval romain (Berlioz); Funeral March (De Boeck); Piece (Van Durme); Canadian Fantasia (Gilson); Gramophone Records (Rich. Strauss): (a) Morgen, (b) Ständchen; Herdersdicht (Van Nieuwenhove); Aaan de Leie (Uttenhove); Feestklanken (Verheyden). In an interval at **8.45,** Talk. **10.0,** Le Journal Parlé. **10.10,** Old and Modern Dance Music on Gramophone Records. **11.0** (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—**5.25 p.m.,** Orchestral Concert. **6.0,** Talk on Romania. **6.40 p.m.,** Popular Music on Gramophone Records. **7.0,** Quartet in D Minor (Hadyn), by the Theodorescu Quartet. **7.30,** Talk. **7.45,** Harp Solos by Mme. Pessione. **8.5,** Quartet in G (Buonamici) by the Theodorescu Quartet. **8.35,** Concert by Dinico and his Orchestra, from the Enesco Restaurant. **9.0,** News Bulletin.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on **840 metres from 6.30 to 11.0 p.m.—4.30 p.m.,** Pianoforte Recital by Maria K. Comensolis. Organ Fantasia and Fugue (Bach); Fantasia (Chopin); Two Preludes (Chopin); Etude (Chopin); Waltz from Die Fledermaus (Joh. Strauss-Dohnanyi). **5.0,** German Lesson. **5.20,** Concert by a Cigány Band. **6.0,** Programme by Koloman Kittenberger. **6.40,** Bralms Concert by the Philharmonic Orchestra, relayed from the Royal Hungarian Opera House. Conductor: Ernst Dohnanyi. Soloist: Maria Basilides (Songs). Pianoforte Concerto in B Flat; Songs; Symphony No 2 in D. **8.50,** News. **8.55** (approx.), Concert by the Karl Bura Cigány Band, relayed from the Hotel Metropole. **11.0** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Time Signal and Chimes from the Town Hall. **11.2,** Concert by the Max Skalka String Ensemble, relayed from the Hotel d'Angleterre. **2.20,** Talk for Housewives. **2.30,** Concert by Carl Rydahl's Instrumental Ensemble; Soloist: Augusta Haugsted (Pianoforte); March, Fucle Teddy (Fucik); Comedy Overture (Kéler-Béla); Waltz, Hoffnungsstralulen (Lanner); Selection from Lilac Time (Schubert); Minuet in old Style (Burmester); Ideale (Tosti); Spanish Dance (Moszkowsky); Pianoforte Solos: (a) Two Intermezzos, Op. 117 (Brahms), (b) Three Pieces from Bilder aus dem Volksleben (Grieg); Waltz, Carmia (Pecking); Selection from The Merry Widow (Lehar); Berceuse (Henriques); Fantasia, Dream Pictures (Lumbye); Melody (Finck); Overture, A Waltz Dream (O. Straus). **4.40,** Exchange and Fish Market

Prices. 4.50, Talk. 5.20, English Lesson. 5.50, Weather. 6.0, News. 6.15, Time. 6.30, Talk on Mohammed. 7.0, Time Signal from the Town Hall. 7.1, The Hansen Family—Sketch (Jens Locher). 7.15, Serenade in F, Op. 24, for Strings (Klengel). 7.45, From the Stage-coach to the Aeroplane—Literary and Musical Programme. 8.30, Harpsichord Solo: Suite No. 11 in C (Scarlatti). 8.45, Gramophone Concert of Variety Music. 9.0, News Bulletin. 9.45, Dance Music by the Jens Warny Band, relayed from the Nimb Restaurant. In an interval at 11.0, Time and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**12 Noon,** Light Music on Gramophone Records. **12.30 p.m.,** News Bulletin. **12.45,** Popular Concert. **6.0 to 7.0,** Programme in English by the I.B.C.: C. Danvers Walker, R. Chene and B. McNabb Announcing. **6.0,** Quartet Concert for Hasting's Listeners: Gavotte from Mignon (Thomas); Molly on the Shore (Grainger); Orientale (Cui); Cherry Ripe. Violin Solo: Hymn to the Sun (Rimsky-Korsakov); Siciliana; Ständchen (Heykens); Andante Cantabile (Tchaikovsky). **6.30,** Concert for Eastbourne Listeners: The Whistler and his Dog (Pryor); Song: Up with the Lark; Smiling Irish Eyes; The Warbler's Serenade (Perry); You're Calling me over the Sea; Wandering around; When the Lilac Blooms Again; Sari Waltz (Kálmán). **7.0,** Local News and Popular Music on Gramophone Records. **7.30,** Radio Gazette. **8.0,** The Listeners' Hour and News. **9.0,** Variety Programme, relayed from **Berck.** **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music: Them There Eyes; There's Something about an Old-Fashioned Girl; Swingin' in a Hammock; Okay Baby; Beware of Love; O Donna Clara; What a Perfect Night for Love; My Future Just Passed; Moonlight on the Colorado; Sous les toits de Paris; You are the Melody; Harmonica Harry; A Little Love Song; Soldier on the Shelf; The Kiss Waltz. **11.0,** Orchestral Concert: Poème (Fibich); Wedgwood Blue (Ketelbey); Babes in Toyland (Herbert); Erstes Walzer (Robrecht); Reconciliation (Drigo); Piano Solo: Rangoon Rice Carriers (Holbrooke); O Frühling, wie bist du so schön (Lincke). **11.30,** Vocal and Orchestral Concert: Songs of Other Days; Chorus: (a) Songs by the Camp Fireside, (b) Because (d'Hardelot); Quartet: (a) Ould John Bradleum, (b) John Peel; Chorus: Songs of the Army; Quartet: On Ilkla Moor baht aht; Song Memories. **12 Midnight,** Variety Concert: She jumped on her Push-bike and Pedalled Away; Down the River; Where Rainbows Rest; Is Izzy azzy woz?; Medley of Welsh Airs; I'm always round at Freda's; Koppa-ka-Banna; Irish Jigs. **12.30 a.m. (Tuesday),** Concert of Songs: My Fate is in Your Hands; Darling Old Mother of Mine; Dark Red Roses; Orchestra: Selection from Viktoria and her Hussar; Mona; I wish I had died in my Cradle; Give me my Heart. **1.0,** Concert by an Accordion Band (Señorita Tango (Alexander); Javanette (de Bozi); Volante (Alexander); The Waltz that made you Mine; Bertina Waltz; 'Leven pounds of Heaven (Malneck); After the Ball (Harris); Lullaby of the Leaves (Young). **1.30,** Concert of Songs: Painting the Clouds with Sunshine; Tiptoe through the Tulips; I've finished with Lily; Trio: Mia Bella Rosa; I've never seen a Smile Like Yours; My Rose of Stamboul; First you say Yes; Trio: Will you Forget. **2.0,** Dance Music: Two Little Blue Little Eyes; That's When I learned to Love; I Love You, Believe me I love you; Gipsy Dream Rose; My Heart belongs to the Girl who belongs to Somebody Else; The Moon is Low; Beside an open Fireplace; Kitty from Kansas City; Reminiscing; My Cigarette Lady; I still Remember; It must be You; M-A-R-Y I Love You; If I had a Girl like You; Just a little Closer; You're just a Lover. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259 metres; 17 kW.; **CASSEL, 245.9 metres; and TRIER, 259.3 metres.—5.25 p.m.,** Dialogue: The Place of Woman in Man's Life. **5.50,** English Lesson. **6.15** Time, Programme Announcements, Weather and Exchange. **6.20,** Ten Minutes' Instruction in Traffic Problems. **6.30,** The Veils Fall—a Radio Play about Modern Turkey (Karl Klinghardt). **7.10,** Brahms Concert by the Municipal Musical Society, relayed from **Trier.** Conductor: Hans Rosbaud. Soloist: Emmi Leisner (Contralto). Tragic Overture, Op. 81; Three Songs with Orchestral Accompaniment: (a) Wie bist du meine Königin, (b) Immer leiser wird mein Schlummer, (c) Sandmännchen; Schicksalslied, Op. 54, for Choir and Orchestra; Three Songs with Orchestral Accompaniment: (a) Von ew'ger Liebe, (b) Feldeinsamkeit, (c) Ständchen; Symphony No. 1 in C Minor, Op. 68. **8.35,** Otto Gmelin discusses his Book, Sommer mit Cordelia. **8.55,** Recital of German Ballads. **9.20,** Time, Weather, News and Sports Notes. **9.30,** Cigány Music from **Budapest.**

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.—6.5 p.m.,** Talk on the Unemployed. **6.25,** Weather Report. **6.30,** Kurt Geuke reads from his own Works. **7.5** (from **Bremen**), Concert by the Oldenburg Landestheater Orchestra. Conductor: Philip Wüst. Soloist: Annemarie Sottmann (Soprano). Concerto grosso in G Minor, No. 17 (Händel). Soprano Solos: Two Airs from Die Bekehrung des heiligen Augustins (J. A. Hasse); Symphonic Poem, Don Juan, Op. 20 (R. Strauss); Exultate jubilate for Soprano and Orchestra (Mozart); Symphonic Poem, Death and Transfiguration, Op. 24 (R. Strauss). In the interval, First General News. **8.45,** Topical Talk. **9.0,** News Bulletin. **9.20,** Concert from the Stadtschänke. **9.50** (in an interval), Ice Report. **10.5,** Concert from the Café Wallhof.

HANOVER.—See **Hamburg.**

HEILSBERG

275.5 metres, 60 kW.; and **DANZIG, 453.2 metres.—12.5 to 1.30 p.m.,** Gramophone Concert of Popular Music. In the Interval at 12.20, News. **2.0,** Exchange and Market Prices. **2.30,** Readings from the Best Essays on When was I really afraid? **3.0,** Concert by the Little Orag Orchestra, conducted by Eugen Wilcken: Rakoczy Overture (Keler-Bela); Fantasia on Music by Godard; Rhapsody No. 1 in F Minor (Liszt); Waltz from The Veil of Pierrette (Dohnanyi); Overture, A Life for the Czar (Glinka); Ballet Suite (Popy); Waltz, Solitude (Waldteufel); Légende d'amour (Berce); Wasserspiele (Rusch); Selection from Hoheit tanzt Walzer (Ascher). **4.0** (in an interval), Talk, Memorable Days of the Week. **4.45,** Talk: Gliding. **5.15,** Market Prices. **5.20,** Ice Report. **5.30** (from **Danzig**), Talk: Danzig Burgermasters of the Sixteenth Century. **6.0,** Elementary English Lesson. **6.25,** Weather and News. **6.30,** Programme from Frankfurt. **7.10,** Weather and news. **7.15,** (from **Danzig**), Chamber Music: Ten Variations on the Song, Ich bin der Schneider Kakadu (Wenzel Müller), for Pianoforte, Violin and 'Cello, Op. 121a; Quintet in F Minor for Pianoforte, two Violins, Viola and 'Cello, Op. 34 (Brahms). **8.15** (from **Danzig**), Walter von Molo reads from his own Works. **8.40,** Concert by the Königsberg Baptist Male Voice Choir: O Heimat, wie bist du so wunderschön (Adolf Egler); Folk Song, Im schönsten Wiesengrunde (Eighteenth Century); Wenn ich den Wandrer frage (Fried. Brückner); Ueber allen Gipfeln ist Ruh (Kuhlo); Die Abendglöcken läuten (Franz Abt); Folk Melody. Müde bin ich, geh' zur Ruh; Hymn to Night (Beethoven). **9.10,** Weather, News and Sports Notes.

HILVERSUM

(Announced **HUIZEN**). **296.1 metres;** 20 kW. (7kW. up to **4.40 p.m.**).—Programme of the Christian Radio Society (N.C.R.V.). **11.10** a.m., Light Music on Gramophone Records. **11.40,** Police Announcements. **11.55,** Light Music (contd.). **12.10 p.m.,** Organ Recital by Jan Zwart: Toccata in C Minor (Boëllmann); Voix céleste (Batiste); Toccata in D (Renaud); Psalms and Religious Songs (arr. Zwart); Scherzo from the Second Symphony (Vierne); Pontifical March from the First Symphony (Widor); Scherzo from Sonata No. 8 (Guilmant); Suite (Zwart); Andante religioso (Dreyschock); Minuet (Salomé); Invocation (Guilmant); Suite No. 4 (Zwart). **1.40,** Programme for Schools. **2.15,** Talk. **2.55,** Dressmaking Lesson. **3.10,** Millinery Lesson. **3.25,** Interval. **3.40,** Bible Reading, followed by Songs by J. H. Smit Duyzentkunst (Baritone) and Organ Solos by H. Duyzentkunst. **4.40,** Variety Music on Gramophone Records. **5.10,** Trio Concert: C. Dekker (Accordion), Th. Verwey (Accordion), and J. Smit (Drum and Xylophone). In the intervals, Gramophone Records. **6.10,** The Letter Box. **7.10,** Police Announcements. **7.25,** Religious Information. **7.40,** Concert by a Women's Choir. **8.40,** Talk. **9.10,** Organ Recital. **9.40,** News. **9.50,** Concert by the Utrecht String Quartette: Quartet in A Minor, Op. 29 (Schubert); Gramophone Records: Quartet, Op. 96 in F (Dvorák). **10.50,** Light Music on Gramophone Records. **11.10** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

(Announced **HILVERSUM**). **1,875 metres;** 8.5 kW.—**11.40 a.m.** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). **11.40,** Concert by the Little V.A.R.A. Orchestra, conducted by P. Duchant: Servus Wien (Komzak); Paysage d'automne (Waldteufel); Die Mühle im Tal (Rhode); Chinese March (Schytte); Serenata (Toselli); Hochzeitszug in Lilliput (Translateur); Variety Music on Gramophone Records: Donauwellen (Ivanovici); Cracovienne (Moszkovski); Russian Dance (Nakehomian); Tarantella (Rossini); Waltz, Over the Waves (Rosas); Stettiner Kreuzpolka (Schlichting); Bahn frei (Ed. Strauss); Two Swabian Dances (Urbach); Light Music on Gramophone Records: Selection from Boccaccio (Suppé); Selection from The Merry Peasant (Fall); March (Bird). **1.40 to 2.10 p.m.,** Interval. **2.10,** Pianoforte Recital by Theja Schwartz: Polonaise in D Minor, Op. 71, No. 1 (Chopin); Trois Ecossaises, Op. 72, No. 3 (Chopin); Andante (Szymanowski); Two Mazurkas (Szymanowski). **2.25,** Variety Music on Gramophone Records. **2.30,** Pianoforte Recital (Contd.): Tarantella, Op. 43 (Chopin); Two Mazurkas (Chopin); Berceuse (Tansmann); Oberek (Tansman). **2.40,** Recitations. **3.10,** Light Music on Gramophone Records. **4.20,** Programme for Children. **4.50,** Concert by De Notenkrakers, conducted by D. Wins; Czardas No. 8 (Michiels); The Pigeon (Yradier); Two Swabian Dances (Urbach); Adoration (Bianco); International Suite (Tchaikovsky); Gramophone Records: Lumisches Glück (Strauss-Bürger); Serenade (Bose). Gramophone Records: Romantic Waltz (Heinecke); Chiquita (Yradier); Poem (Charmon); Peterchens Mondfahrt (Schmalstich); Congojas (Bianco); Memories of the Ukraine (Ferraris); Gramophone Records: Gipsy Dance (Boldi); Russian Dance (Nakehounian); Servus Wien (Dostal). **6.40,** Concert from **Budapest. 8.40,** Talk on Music. **9.40,** News Bulletin. **9.50,** Concert by De Fliereffuiters, conducted by Hugo de Groot. Soloist: E. Philipse (Songs). **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.15 p.m.,** Announcements and Gramophone Records. **6.25,** Announcements. **7.0,** Light Music. **7.15,** See **Warsaw. 10.0,** Dance Music from the Café Astoria.

KAUNAS

1,935 metres; 7 kW.—**6.0 p.m.,** Time, Weather and News. **6.30,** Instrumental Concert: Clarinet Solo: Concertino (Reissiger); Violin Solo Corelli Variations (Tartini); Pianoforte Solo: Scherzo (Simkus). **7.0,** Educational Talk. **7.20,** String Quartet (Beethoven). **7.50,** Talk on Banking. **8.10,** Variety Programme. **8.50,** Sports Notes. **9.0,** Ballet Suite from The Sleeping Beauty (Tchaikovsky). **9.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres; 40 kW.; and **HELSINKI, 368.1 metres.—5.55 p.m.,** Talk. **6.20,** Introductory Talk to the following Transmission. **6.30,** Concert of Modern Austrian Music by the Station Orchestra, conducted by Toivo Haapanen, and Soloists. **7.45,** News in Finnish. **8.0,** News in Swedish.

LANGENBERG

473 metres; 60 kW.—**12 Noon,** Concert conducted by Eysoldt. Jubel-Ouverture (Bach); Träume (Wagner); Liebesfeier (Weingartner); Fantasia, Godard-Zyklus (Urbach); Romantic Suite (Armandola); Old Dance Melody (Amadei); Annen-Polka (Strauss); Waltz, Träume auf dem Ozean (Gungl); Selection from Hoheit tanzt Walzer (Ascher); Felsenfest-Marsch (Reckenwald). In the interval at **1.0 p.m.,** News. **1.30,** Meat Market Prices. **2.30,** Economic Notes and Time. **2.50,** Programme for Children. **3.20,** Programme for Young People. **4.0,** See **Munich. 5.20,** Talk: The Seasons. **5.45,** Weather, Time, Economic Notes and Sports Results. **6.0,** Talk for Women. **6.20,** Reading of Unpublished Poems. **6.30,** Talk on Autonomy. **6.55,** News. **7.0,** Concert of Light Viennese Music, relayed from **Düsseldorf.** The Düsseldorf Chamber Orchestra, conducted by Dr. Alfred Fröhlich. Soloists: Lisbet Engels-Neumann (Soprano and Guitar), Josef Schömmer (Tenor), and Karl Oschatz (Accordion). Overture, Indigo and the Forty Thieves (Joh. Strauss); Waltz, Nachtfalter (Strauss); Annen-Polka (Strauss); Polka, Hoch Ungarn (Strauss); Tenor Solo: Traumwalzer from Der Feldprediger (Millöcker); Selection from Boccaccio (Suppé); Waltz, Faschingskinder (Zieherer); Deutschmeister-Marsch (Jurek); Wiener Künstler Marsch (Schrammel); Waltz, Weana G'müat (Schrammel); Tenor Solo: Ausser Rand und Band (Kutscher); Soprano Solos: (a) Buama, Madeln, Bleameen und a Wein, (b) Der Herrgott muss a Weana sein (Engel-Berger); Nussdorfer Marsch (Lorens). **9.5,** News and Sports Notes. **9.30,** Serenade, conducted by Eysoldt.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN, 319 metres.—12.15 p.m.,** Bizet Music on Gramophone Records: Prelude to Carmen; Agnus Dei; Little Orchestral Suite; Two Arias from The Pearl Fishers; Suite from L'Arlésienne; Exchange Quotations after the Concert. **1.0 p.m.,** Art and Film Review. **1.30,** Advice for the Unemployed. **1.45,** Tadzio Konti reads from Heinrich Zerkaulen's Novel, Rautenkranz und Schwerter. **2.35,** Exchange and Market Prices. **3.0,** Concert by the Station Orchestra, conducted by Hermar Weber: Overture, Jean de Paris (Boieldieu); Orchestral Suite, Aus Thüringen (Raff); Brau-Walzer (Koschat); Selection from Das süsse Mädel (Reinhardt); Intermezzo, Braunreuther Porzellan (Lincke); March, Heidenblut (Stelzig); Ball Scene from Die Abenteuer einer Neujahrsnacht (Heuberger). **4.30,** Weather and Time. **4.50,** Exchange Quotations. **5.0,** Educational Talk. **5.30,** Talk: A Thousand Years of German Literature—The Humanists. **5.50,** Talk: Rahel Varnhagen. **6.10** (approx.), Talk: The Propagation of German Culture in Other Countries. **6.30,** Recital of Loewe Ballads by Wilhelm Kode, Archibald Douglas, Odins Meeresritt, Glockentürmers Tochterlein. **7.0,** Concert of Light Music by the Emdener Orchestra. **8.30,** Reading (Jo van Ammers-Küller). **9.5,** News Bulletin. **9.20** (approx.), Concert of Light Music by the Leipzig Symphony Orchestra, conducted by Alois Melichar: Court Festival and Love Song from Das Herz (Pfitzner); Waltz Scene and Entr'acte Music from Intermezzo (Richard Strauss); Romantic Suite, Op. 125 (Max Reger). **10.30** (approx.), Close Down.

LINZ.—See **Vienna.**

LWOW

381 metres; 16 kW. **6.0 p.m.,** Talk on History. **6.15,** Miscellaneous Items. **6.30,** See **Warsaw. 7.0,** Feuilleton. **7.15 to 11.0,** See **Warsaw. 11.0** (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South East. **8.30,** Instrumental and Vocal Concert, conducted by Charles Strony. After the Concert, News Bulletin.

MADRID

ARANJUEZ, EAQ, 30.43 metres; 20 kW.—**10.30,** Popular Music. **11.0,** Popular Music (contd.). **11.35,** Sports and Bull-fighting Notes. **11.35,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO; Call EAJ7; 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, and Request Gramophone Concert. **8.15,** News Bulletin. **8.30** (approx.), Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**4.50 p.m.,** Popular Music on Gramophone Records. **5.0,** Book Review. **5.15,** Talk for Workers. **5.25** See **Prague. 5.30,** German Transmission: Talk on Wieland and Reading from his Works. **6.0,** See **Prague. 6.40,** See **Brno. 7.45** See **Prague. 8.0,** See **Brno. 9.0,** See **Prague 9.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**3.0 p.m.,** Concert and Answers to Correspondents. **5.0,** Relay of a Meeting for Women Workers.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg and Kaiserslautern, 560 metres** and **Nürnberg, 239 metres.—4.0 p.m.,** Concert, conducted by Erich Kloss. Overture, Lucio Silla (Mozart); Andante from the Octet (Schubert); Musical Scenes from Die Königskinder (Humperdinck); Wiegenlied and Scherzo (R. Strauss); Selection from Der Teufelsreiter (Kálmán); Serenade (Kark); Gondola Song (Scharwenka); Mazurka brillante (Liszt). **5.15,** Talk: Pictures from the History of Transport. **5.35,** Talk for Workers. **5.55,** Time, Weather and Agricultural Notes. **6.5,** Talk by Josef Bayer-Hochbrunck: My Teaching Experiences. **6.30,** See **Leipzig. 7.35,** Talk: In an Aeroplane over Garmisch-Partenkirchen. **7,55,** Symphony Concert, conducted by Hans A. Winter. Soloist: Franz Dorfmüller (Pianoforte). Overture, Manfred (Schumann); Concerto No. 1 in C for Pianoforte and Orchestra (Beethoven); Symphony No. 5 in E Minor (Tchaikovsky). **9.20,** Time, Weather, News and Sports Notes. **9.45,** Concert from **Langenberg. 11.0** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredriksstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres;** and **Rjukan, 447.1 metres.—4.0 p.m.,** Concert of Chamber Music by the Station Ensemble. **5.0,** German Lesson. **5.30,** Talk. **6.0,** Announcements, Weather, and News. **6.30,** Geological Talk. **7.0,** Time Signal. **7.1,**

Pianoforte and 'Cello Recital. 8.10, Political Review. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Talk on Popular Songs of Britanny, with Illustrations, by Mme. Borghild Moss Johansen (Soprano). 9.45 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—**7.0 p.m.,** Dopolavoro Notes, Tourist Talk, Agricultural Notes. Report of the Royal Geographical Society, and Giornale Radio. **7.20,** Popular Music on Gramophone Records. In an interval at **7.30,** Time and Announcements. **7.45,** Concert of Chamber Music. Soloists: Marisa Bentivegna (Pianoforte), Clara Bentivegna (Violin), and Pollicino (Tenor). Sonata in G for Pianoforte and Violin (Beethoven); Songs: (a) Vezzosette e care (Falconieri), (b) Dormi bella (Bassani); Pianoforte Solos (Castelnuovo Tedesco): (a) Romanza senza parole, (b) Studio sulle note false, (c) Tango, (d) Foxtrot; Songs: (a) Arisa (Cavalli), (b) Danza fanciulla (Durante); Violin Solo: Sixth Sonata (Bach); Pianoforte Solos (Chopin): (a) Nocturne, (b) Ballad in A Minor (Chopin). After the Concert, Light Music on Gramophone Records. **9.55,** News.

PARIS

EIFFEL TOWER; Call FLE; 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **9.26 a.m. and 10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.,** Le Journal Parlé. **7.20,** Weather Report. **7.30,** Roger and Varney. Operetta Concert. Airs from Les Monsquetaires au Convent, La Femme à Narcisse, Le papa de Francine and Les Vingt-huit jours de Clairette. **8.30,** Songs of the Renaissance and Folk Songs. Concert by the G Major Vocal Quartet. Allons gay bergère (Costeley); Petite nymphe folastre (Janequin); Grisélidis; Bonjour mon cœur (de Lassus); Ce mois de may (Janequin); Duet: Tu ne dis pas, jeune Lisette; La Marquise empoisonnée (arr. Philip); Les danseurs noyés (arr. Philip); La Vache égarée; L'Abandonnée. **9.0** (Approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Hot Jazz on Gramophone Records. **7.30,** Sponsored Concert. **8.0,** Talk by Dr. Ombredane. **8.5,** Talk on Aviation. **8.15,** Interval. **8.30,** Variety Concert. **9.40,** Sponsored Concert. **10.40,** News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Gramophone Records: (a) Overture, Mireila (Gounod), (b) Overture, Die Fledermaus (Joh. Strauss). **8.0,** Press Review and Weather. **12 Noon,** Concert of Opera and Ballet Music by the Radio Orchestra: Overture, The Magic Flute (Mozart); Selection from Hippolyte et Aricie (Rameau); Minuet from Orpheus (Gluck); Gramophone Records (Meyerbeer): (a) Aria from Robert le Diable, (b) Cavatina from The Prophet, (c) Recitative and Choral from The Huguenots; Ballet Music from Henry VIII (Saint-Saëns); Gramophone Records (Massenet): (a) Aria from Escharmonde, (b) Death of Don Quixote from Don Quixote, (c) Duet from Thais; Selection from Nonna Vanna (Février); Selection from Le Miracle (Hue); Melodies from La Fête chez Thérèse (Hahn). In the intervals at **1.0 p.m.,** Exchange, News, and Weather; and at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Elementary English Lesson. **6.50,** Film Review. **7.0,** Book Review. **7.20,** Concert by the Radio Orchestra: Orchestral Suite (Lazzari); Chant du Soir (Schmitt); Marche du Synode (Saint-Saëns). **7.45,** Commercial Prices and News. **7.50,** Horticultural Talk. **8.0,** La Petite Mariée—Operetta (Lecocq). In the intervals at **8.30,** News, Weather, and Sports Notes; at **8.40,** Review by Paul Reboux; and at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.,** Work-a-day Thoughts. **9.5,** Business News. **9.15,** Programme to be announced. **9.30,** Weather Report. **9.32,** Market Report. **9.45,** Pianoforte Interlude. **9.53,** David Lawrence Dispatch. **9.58,** Programme Announcements. **10.0.** Programme to be announced. **10.30,** The Singing Lady, from New York. **10.45,** Little Orphan Annie. **11.0,** Booth Tarkington's Maude and Cousin Bill, from New York. **11.15,** Time Signal. **11.16,** Temperature Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Recler. **11.27,** Strange Facts. **11.29,** Weather Report. **11.30,** KDKA Orchestra. **11.45 to 3.30 a.m.** (Tuesday), New York Relay. **11.45.** To-day's News, by Lowell Thomas. **12.0 midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m. (Tuesday),** Tastyeast Jesters. **12.30,** Five Star Theatre—Marx Brothers. **1.0,** Cliquot Club Eskimos. **1.30,** Time Signal and Don Carney—A Talk for Dog Lovers. **1.45,** Philips Lord in The Country Doctor. **2.0,** Sinclair Minstrels. **2.30,** Jack Frost Melody Moments. **3.0,** The Sizzlers. **3.15,** Vic and Sade. **3.20.** Bridge School of the Air, by E. Hall Downes. **3.45,** Samuel Di Primio (Tenor), and Bradley Kincaid. **4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.13,** KDKA Artist Bulletin. **4.15,** Press Last Minute News. **4.20,** Smith Ballew and his Orchestra. **4.58,** KDKA Artist Bulletin. **5.0,** Hotel Bismarck Orchestra, from **New York.** **5.30,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.,** See **Bratislava.** **4.10,** Talk: Reminiscences of Josef Holecek. **4.20,** Talk: The Teacher and the Wireless. **4.30,** Programme for Children. **4.50,** Variety Music on Gramophone Records. **5.5,** Agricultural Report. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission: Talk on Flowers and Insects. **6.0,** Chimes. **6.1,** News. **6.10,** English Conversation. **6.25,** Talk: Reminiscences of Life and the Theatre, by F. Bohuslav. **6.40,** See **Brno.** **7.45,** Talk: President Masaryk. **8.0,** Time Signal. **8.1,** See **Brno.** **9.0,** Time Signal. **9.1,** News Bulletin. **9.15** (approx.), Close Down.

RADIO-SUISSE ROMANDE

403 metres; 25 kW.: **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.**—**5.30 p.m.** (from **Lausanne**), German Lesson. **6.0** (from **Geneva**), Weather Forecast, News and Announcements. **6.30** (from **Lausanne**), Lesson for Farriers. **7.0** (from **Lausanne**), Song Recital by Mlle. Francine Boichot. **7.20** (from **Lausanne**), Introductory Talk to the following Concert. **7.30** (from **Lausanne**), Symphony Concert by the Station Orchestra, conducted by Ernest Ansermet, relayed from the Municipal Theatre; Soloist: Mme. Cecilia Hansen (Violin): Sinfonia brevis, De Bello Gallico (Vincent d'Indy); Concerto in B Minor for Violin and Orchestra (Saint-Saëns); Quand le printemps s'éveille (Déneréaz); La Mar (Debussy). In the interval at **8.15** (approx.), News and Weather. **9.20** (from **Geneva**), Talk: The Work of the League of Nations. **9.40** (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—**8.30 p.m.,** Weather Report. **8.40,** Concert and Announcements. **9.0,** Chimes and News. **9.30,** Reading. **10.0,** Popular Concert by the Station Quartet with Songs.

RIGA

525 metres; 15 kW.—**5.0 p.m.,** Saxophone Recital: Canzonetta (Tchaikovsky); Humoresque (Dvorák); Serenade (Drigo); Saxophobia (Widoeft). **5.30,** English Lesson. **6.0,** Weather Forecast. **6.5,** Brahms Concert by the Station Orchestra, conducted by Prof. Medins. Tragic Overture; Songs; Serenade in D. **7.0,** News Bulletin. **7.20,** Concert by the Station Orchestra, conducted by Prof. Medins. In the Steppes of Central Asia (Borodin); Suite, A Thousand and One Nights (Bortkievicz); Overture, My Home (Dvorák); Prelude, Choral and Fugue (Franck). In an interval at **8.0,** Weather and News. **8.30,** Dance Music. **9.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres;** and **2RO, 25.4 metres.**—**7.0 a.m.,** Gymnastics. **7.15 to 7.30,** Giornale Radio and Announcements. **11.30,** Weather and Light Music on Gramophone Records. **12 Noon to 1.15 p.m.,** Concert from **Turin.** In the interval from **12.30 to 12.45,** Giornale Radio and Exchange. **3.45,** Children's Radio Review. **4.10,** Announcements. **4.15,** Exchange and Giornale Radio. **4.30,** Concert from the Royal Philharmonic Academy. **6.0 (Naples),** Shipping and Sports Notes. **6.10,** Agricultural and Dopolavoro Notes. **6.20,** Giornale Radio. **7.0,** Time, Announcements and Light Music on Gramophone Records. **7.30,** Sports Notes and Tourist Report. **7.45,** Concert of Light Music. Talk in the interval and after the Programme. **9.55,** News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**7.30 p.m.,** The Revolving Stage, from **New York.** **8.0,** Olsen Instrumental Trio. **8.15,** Antoinette Halstead (Contralto). **8.39, W2XAD** Sign Off. **12 Midnight,** Gruen and Hall, from **New York.** **12.15 a.m. (Tuesday),** Stock Reports. **12.30 to 2.30, New York relay.** **12.30,** Van and Don—Comedy Team. **12.45,** The Goldbergs. **1.0,** Socony-land Sketch. **1.30,** Voice of Firestone. **2.0,** A. & P. Gipsies. **2.30,** Buick Programme, Whiteman's Orchestra, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER; 459 metres; 60 kW.: **BASLE, 241.1 metres;** and **BERNE, 245.9 metres.**—**11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40,** Carnival Programme, on Gramophone Records. **12 Noon** (from **Basle**), 'S Buebezigli—Dialect Reading. **12.20 p.m.,** Popular Music on Gramophone Records. **12.35 to 12.45,** Weather and Exchange. **2.30** (from **Zürich**), Concert by the Echo vom Mythen Ländler Orchestra. **3.15,** Sound Film Music on Gramophone Records. **4.0,** English Military Music on Gramophone Records. **4.30 to 4.35,** Weather. **5.30,** (from **Zürich**), Talk: Carnival Customs in Switzerland. **6.0,** Time and Weather. **6.15** (from **Zürich**), English Conversation Lesson. **6.45** (from **Zürich**), Carnival Programme. **7.30,** Carnival Programme, with Yodels and Accordion Solos, Songs to the Lute, and Music by the Radio Orchestra and a Ländler Band. **8.30,** Weather and News. **8.40,** Carnival Programme. **9.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres; and Sundsvall, 542 metres.**—**12 Noon,** Broadcast for Schools. **4.5 p.m.,** Accordion Music from **Göteborg.** **4.30,** Talk: Acrobatic Skating. **5.0,** Popular Music on Gramophone Records. **5.55,** Parliamentary Review. **6.30,** Concert of Operetta Music. Introduction; Duet from Don Cesar (Dellinger); Song from The Cinema Star (Gilbert); Duet from The Dollar Princess (Fall); Waltz from The Girl in the Taxi (Gilbert); Duet from Red Roses (Lehár); Duet from The Count of Luxembourg (Lehár). **7.15,** Concert of Swedish Music by the Radio Orchestra. Soloist: Set Svanholm (Songs). Orchestral Suite No. 2 from Pintorpafrun (Erik Atterberg); Two Songs with Orchestra (Erik Atterberg); Piece for 'Cello and Orchestra: Regret (Hagerstrand); Two Miniatures (Seymer); Rhapsody, Dala (Kallstenius). **8.15,** Talk: The Wavelength Problem. **9.0,** Concert of Light Music. Variations on a Carnival in Venice (Ritzau); I skymningen (Sedström); Waltz, Vinetaglocken (Lindsay-Theimer); Selection from Sicilian Vespers (Mascagni); Tango (Markush); Pot-pourri (Taube); Valse berceuse (de Micheli); Pasodoble (Doelle). **10.0** (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Concert. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Gramophone Concert of Light Music. **2.0 to 5.0,** Interval. **5.0,** Concert of Jazz Music, conducted by M. Roskam. **6.0,** Literary Talk in French. **6.15,** Review of the Week in German. **6.30,** Chamber Music Concert: Trio in G Minor for Pianoforte, Violin, and 'Cello (Chausson); Suite for Violin and Pianoforte (Erb); Quartet for Strings (Mendelssohn); Concerts royaux for Violin, 'Cello, and Pianoforte (Couperin). In the interval at **7.30,** Time and News. **8.20,** Lottery Results. **8.30,** Concert by the Cercle artistique de l'est, relayed from the Exchange, **Nancy;** Soloists: Mme. Ferdinand Houzé (Recitations), Mme. Ginette Gobert (Songs), Marguerite Greff (Pianoforte), Josette Durivaux, age five (Violin), and Marcel Durivaux (Oboe); Pianoforte Solos: (a) Etude in F Minor (Chopin), (b) Prelude (Debussy); Songs: (a) Aria from The Magic Flute (Mozart), (b) Mer grise from Poèmes maritimes (Hüe); Violin Solos: (a) Minuet (Boccherini), (b) Rondo (Mozart); Concerto for Oboe (de Grandval); Recitation, La Neige (Fabié); Pianoforte Solos: (a) Invocation, from Iberia (Albéniz), (b) Toccata from Le tombeau de Couperin (Ravel); Songs: (a) Dans le jardin multicolore (Hüe), (b) O! mon champ bien aimé (Rachmaninov); Violin Solo: Concertino (Huber); Recitation, Le pardon (William Chaumet). After the Concert, Talk on Art by M. Hunziker. **10.15** (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.**—**11.0 a.m.,** Concert by the Station Orchestra, conducted by Gustav Görlich. Soloist Georg Beerwald (Violin). Overture, The Italian Girl in Algiers (Rossini); Suite, Dances of the Nations (Maunfred); Three Short Pieces for Violin and Orchestra: (a) Moment musical (Schubert), (b) Waltz (Brahms), (c) Canzonetta (d'Ambrosio); March of the Tin Soldiers from the Ballet Andersen (Nedbal); Waltz, Red Roses (Lehár); Potpourri of Viennese Operetta Music (Robrecht). **12.15 p.m.,** Time, Weather, News and Programme Announcements. **12.30,** Concert from **Langenberg.** **1.0,** Concert arranged by the Post Office. **1.30,** Spanish Lesson. **2.0,** Elementary English Lesson. **3.30,** Reading: Mariechen (Heinrich Stilling). **4.0,** See **Munich.** **5.15,** Time, Weather, and Agricultural Notes. **5.25,** Talk: South-German Industries—Musical Instruments and Toys. **5.50,** See **Frankfurt.** **6.15,** Time and News. **6.30,** Radio Report on an Old Alemannic Festival on the Dreifaltigkeitsberg, Spaichingen. **7.10** (from **Freiburg**), Concert by the Municipal Theatre Orchestra, conducted by Balzer. Soloist: Poldi Mildner (Pianoforte). Academic Festival Overture (Brahms); Concerto in D Minor for Pianoforte and Orchestra (Brahms); Suite from Faust (Busoni); Suite from the Ballet Schlagobers (Richard Strauss). **9.9,** Time, News, Weather and Programme Announcements. **9.20,** Chess Lesson. **9.45,** Serenade from **Langenberg.** **11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW. **6.0 p.m.,** News Bulletin. **6.15,** Opera Music: Air from Mireila (Gounod); Quintet from Carmen (Bizet); Song from Sappho (Massenet). **6.30,** Symphonic Poem: Till Eulenspiegels Merry Pranks (Richard Strauss). **6.45,** Accordion Music. **7.0,** Tourist Talk. **7.15,** Racing Results and News Bulletin. **7.25,** Local News. **7.30,** Dance Music. **7.45,** Songs from the Sound Films. **8.0,** Music by a Viennese Orchestra. **8.30,** Light Music. **8.45,** Orchestral Music. **9.0,** Scheherazade (Rimsky-Korsakov). **9.30,** Popular Concert. Part I, Operetta Music: Songs from (a) Kadubec (Yvain), (b) Begonia (Mercier), (c) Rose Marie (Friml). Part II: Popular Melodies. **10.0,** Opera Music: Selection from (a) The Valkyries (Wagner), (b) The Huguenots (Meyerbeer), (c) Boris Godounov (Mussorgsky). **10.15,** North African News. **10.30,** Concert for Listeners in Morocco: Waltz (Ziehrer); Song from Si j'étais roi (Adam); Selection from Miss Decima (Audran); Ne dis rien (Fairman); Melody (Clairon). **11.0,** Popular Concert. **11.30 to 12 Midnight,** Programme in English by the I.B.C., Mr. H. K. Hitchcock announcing. **11.30,** Songs from the Films: On the Sunny-side of the Street; If I had a talking Picture of you; Body and Soul; Sunny Side Up; Exactly like you; I'm a Dreamer; Sometime's I'm happy; Spring is here. **11.57,** I.B.C. Goodnight Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Tuesday),** Dance Music. **12.15,** Military Music. **12.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**4.30 to 6.0 p.m.,** See **Turin.** **6.0,** Light Music on Gramophone Records. **6.20,** See **Turin.** **6.35,** Orchestral Concert from the Café Dante. **7.0** (approx.) till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.**—**4.30 p.m.,** See **Rome.** **6.0,** Variety Music on Gramophone Records. **6.20,** Giornale Radio. **6.30, Time,** Announcements, Tourist Report, and Light Music on Gramophone Records. **7.0,** Giornale Radio. Weather, and Gramophone Records (contd.). **7.30,** Choral Concert. **8.20,** A One-Act Comedy. **10.0,** Orchestral Concert conducted by Ugo Tansini. Overture, L'épreuve villageoise (Grétry); Serenatella (Gentili); Sarabande (Bettinelli); Concertino from the Idillio (Wolf-Ferrari); Hungarian Dances (Brahms); Overture, The Daughter of the Regiment (Donizetti). **10.0,** Giornale Radio.

VATICAN CITY

19.84 metres (Morning) and **50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m.,** Religious Information in Italian. **7.0 to 7.16 p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.**—**3.25 p.m.,** Programme for Young People. **3.50,** Talk: First Aid at the Winter Sports at Wienerwald. **4.5,** Concert by the Edi Seidl Orchestra. Celtic Overture (Foulds); Waltz, Perlen der Liebe (Jos. Strauss); Slav Rhapsody, No. 1 (Friedemann); Scenes from Manon (Massenet); Airs (Blon): (a) Traumwehen, (b) In den Dünen, (c) Dolchtanz und Schlangenbeschwörerin; Rhine Pictures (Bizet-Goehr); Potpourri, A—B—C (Komzak); March, Mann an Bord (Wacek). **5.25,** Dramatic Criticism. **5.45,** Books of Reference in Connection with the Week's Talks. **5.50,** Talk: The Spanish Painters Goya and Zuloaga. **6.15,** Time, Weather and Programme Announcements. **6.25,** La Cenerentola—Opera (Rossini), relayed from the State Opera House. **8.55,** News, Weather and Announcements. **9.10,** Dance Music by the Astoria Band, relayed from the Westminster Café.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Bugle Call from the Tower of St. Mary's, Church, Cracow. **11.5,** Programme Announcements. **11.10,** Popular Music on Gramophone Records. **12.20 p.m.,** Weather Forecast. **12.25 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.25,** Traffic Report. **2.35,** Answers to Correspondence. **2.50,** Light Music on Gramophone Records. **3.25,** Elementary French Lesson. **3.40,** Talk on Economics. **4.0,** Concert by the Calvet Quartet: Quartet No. 4 (J. C. F. Bach); Quartet (Ravel). In the Interval, Announcements. **4.55,** Programme Announcements. **5.0,** Talk on Polish Literature: Alexander Fredro. **5.20,** News. **5.25,** Concert of Light Music from the Cafe Gastronomia. **6.0,** Miscellaneous Items. **6.20,** Agricultural Correspondence. **6.30,** Topical Talk. **6.45,** Radio Journal. **7.0,** Technical Correspondence. **7.15.** Aida—Opera (Verdi) on Gramophone Records by the Cast of the Scala, Milan. **9.55,** Weather Report and Police Notes. **10.0,** Dance Music from the Adria Dance Hall.

ZURICH.—See **Schweizerischer Landessender.**

TUESDAY
MARCH THE SEVENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"Biology in Everyday Life," Dr. John Baker. MacDowell programme, vocal and instrumental.
LONDON REGIONAL	"Moonlight 'n Everything," a Pre-War Pierrot Potpourri. Military Band concert.
MIDLAND REGIONAL	Military Band and orchestral programmes.
NORTH REGIONAL	Concert from Houldsworth Hall, Manchester.
WEST REGIONAL	Police Band concert. "Cue for Number," feature programme.
SCOTTISH REGIONAL	Orchestral concert.
BELFAST	Orchestral and choral concert.

ABROAD

HEILSBERG	7.10 p.m. "A Little of All Sorts," a variety programme.
HILVERSUM (announced Huizen)	9.15 p.m. 'Cello and pianoforte recital.
LANGENBERG	7 p.m. Recital on two pianofortes, by Egbert Grape and Dr. Karl Lenzen.
LYONS-la-DOUA	8.30 p.m. Programme in memory of Aristide Briand, relayed from Paris.
PRAGUE	6.30 p.m. "The Jacobin," three-act opera, by Dvorak, relayed from the National Theatre in honour of President Masaryk's birthday.
RADIO PARIS	7.45 p.m. Review of the British Press.
STOCKHOLM	9 p.m. String orchestral concert.
TURIN and TRIESTE	7.30 p.m. "Eva," operetta by Lehar.

ATHLONE

413 metres 60 kW.; and **CORK, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.15,** News and British Market Report. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** Reading of Poems. **8.0,** The Station Orchestra. **8.20,** Song Recital by Mamie Galloway Rigg (Contralto). **8.35,** Harp Solos by Annie Fagan. **8.50,** Violin Solos by Richard Kiernan. **9.10,** The Station Orchestra. **9.30,** Gaelic Song Recital. **10.0,** The Station Orchestra. **10.30,** Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations and Talk on Art. **8.0,** Popular Music on Gramophone Records and News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, and Messages to Seamen. **9.10,** An Opera, relayed from the Gran Teatro del Liceo. **11.0** (in an interval), News Bulletin.

BARI

270 metres; 20 kW.—**7.0 p.m.,** Agricultural Report, Tourist Talk, and Dopolavoro Announcements. **7.20,** Giornale Radio and Press Review. **7.30,** Time and Announcements. **7.35** (approx.), Choral Concert, conducted by Biagio Grimaldi: Song for Four Equal Voices: Hodie Cristus natus est (Palestrina); Song for Three Equal Voices: Song (Mendelssohn); Song for Four Equal Voices: Cante romagnole (Balilla Pratella); Song for Three Male Voices: La tarantella (Bolzoni). **8.30,** Concert by the Station Quintet. In the interval: Talk. **7.30,** Dance Music, relayed from the Grand Hotel Moderno. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—**3.0 p.m.,** Orchestral Concert of Slav Music: March (Petrovic); Serbian Dance No. 1 (Krstic); Overture, Libusa (Smetana); The Nutcracker Suite (Tchaikovsky). **4.0,** Popular Music on Gramophone Records. **5.55,** Time and Programme Announcements. **6.0,** Talk. **6.40,** Variety Music on Gramophone Records. **7.0,** Choral Concert by the Czechoslovak Society. **7.30,** Briand Festival Programme, relayed from **Paris. 9.0,** News.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert of Music from Parsifal (Wagner) from **Berlin (Witzleben). 2.0,** Talk for Young People. **2.30,** Weather and Exchange. **2.45,** Ria Weil reads from her own Works. **3.0,** Talks for Women. **3.30,** See **Leipzig. 4.10,** Night and Morning—a Soliloquy of the Woods. **4.30,** Viola Recital by Herbert Zydatiss: Sonata in E flat (von Dittersdorf); Four Waltzes (Schubert); Minuet (Martini); Gavotte (Gustav Hollönder). **5.0,** Talk: The State and Industry. **5.30,** Illustrated Talk: The Same Verse to different Musical Settings—The German Lied. —I. **5.55,** Weather and Announcements. **6.0,** Talk: Thoughts on a German National Theatre. **6.30,** A Poem. **6.35,** Political Press Review. **7.0,** Concert of Light Music from the Eden Pavilion. **7.30,** Concert by a Marine Band, relayed from the Clou Konzerthaus. Conductor: Alexander Flessburg. Overture (Weber); Intermezzo, Falter und Rosen (Kockert); Historic Marches from many Lands (Boettge); Hunting Fantasia (Prager); March, Admiral Graf Spee (Flessburg); March, Admiral von Holtzendorff (Flessburg); Potpourri, Sonne über Deutschland (Lindemann). **8.30,** A Radio Sequence from the Works of the Poet Ernst Stadler, who fell in 1914. **9.10,** Weather, News and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Concert from **Hamburg. 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**6.0 p.m.,** Topical Talk. **6.15,** Talk: The Origin of Life on the Earth. **6.40,** Announcement. **6.45,** Concert by a Marine Band, relayed from the Clou Konzerthaus: March, Deutschlands Helden (Blankenburg); Fantasia on Four German Songs (Schmidt); Präsentiermarsch der Marine; March, Unsere Marine (Thiele); Alle Tage ist kein Sonntag (Lindsay - Theimer); Parade Marches: (a) Helenenmarsch (Lübbert), (b) Petersburgermarsch, (c) York March (Beethoven); Revue March (Reckling); Badenweiler-Marsch (Fürst); March, In Treue fest (Teike). **7.30,** Bunter Abend, relayed from the Municipal Theatre, Halberstadt. **8.15** (in an interval), A Discussion. **9.15,** Weather, News, and Sports Notes, followed by Dance Music and Light Music from the Café Berlin. **11.0** (approx.). Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER.—See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—**7.30 p.m.,** News Bulletin and Exchange Quotations. **7.40,** Talk for Women. **7.55,** Lottery Results. **8.0,** Talk on Pines. **8.15,** News Bulletin and Weather Forecast. **8.30,** Briand Memorial Programme, relayed from **Lyons.**

BRATISLAVA

279 metres; 14 kW.—**5.55 p.m.,** Dramatic Programme in Honour of President Masaryk's Birthday. **6.20,** Light Music on Gramophone Records. **6.50,** Introductory Talk on the Following Transmission. **7.0,** Concert in Honour of President Masaryk's Birthday, relayed from the Slovak National Theatre. The Bratislava Symphony Orchestra. Conductor: Karel Nedbal. Soloist: Eva Hadrabova-Nedbalová (Soprano). Symphony in G, Op. 95 (Nesvera); Song of Peace (Kálik); Symphony (Moyzes). **9.0,** See **Prague. 9.15,** Popular Music on Gramophone Records. **10.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.—12.10 p.m.,** Music of the Baroque and Rococo Periods on Gramophone Records. The Harmonious Blacksmith (Händel); Air (Mattheson); Tenor Solo from Amadis (Lully); Gigue (Bull); Hornpipe (Purcell); Largo from the Second Concerto (Frederick the Great); Sonata in A (Scarlatti); Aria from Figaro (Mozart); Turkish March (Mozart). **12.45,** Time, Weather, News and Exchange. **1.5,** Gramophone Concert. Foxtrot and Rumba from Die glückliche Reise (Künnecke); Foxtrot from A Honeymoon for Three (Nelson); Vocal Tango from Ball im Savoy (Abraham); Pasodoble from Der grosse Bluff (Grothe); Hof-Serenade (Roland); Marie, Marie (Roland); Das glockenspiel von Rouen (Cons); Folk Song, Schwarzbraun ist die Haselnuss; Foxtrot (Plessow). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Programme for Children. **3.10,** Wolf and Mahler Song Recital by Gerda Werthen (Contralto). Six Songs (Wolf): (a) Anakreons Grab, (b) Blumengruss, (c) Der Schäfer, (d) Verlassenes Magdelein, (e) Lebe wohl, (f) Er ist's; Four Songs (Mahler): (a) Ich bin der Welt abhanden gekommen, (b) Wer hat dies Liedlein erdacht, (c) Rheinlegendchen, (d) Hans und Grete. **3.40,** Concert from **Leipzig. 4.30,** Agricultural Prices. **4.35,** Review of Books on German Literature. **4.50,** Talk: Alice Freiin von Krane—the Life Work of an Octogenarian. **5.20,** Programme to be announced. **5.50,** Talk: How to eliminate Radio interference. **6.0,** Dialogue: Personal Talents as a Means of Livelihood. **6.30,** Weather and Market Prices. **6.35,** Concert from **Hamburg. 7.30,** Political Review. **8.0,** See **Frankfurt. 9.0,** Time, Weather, News, Sports Notes and Programme Announcements. **9.20,** Theatre Talk. **9.35,** Talk: News from The Zoo. **9.50,** Concert from **Hamburg. 11.0** (approx.), Close Down.

BRNO

342 metres; 35 kW.—**5.0 p.m.,** Music Review. **5.15,** Talk: President Masaryk and the Worker. **5.25,** German Transmission: News Reading, and Talk. **5.55,** See **Prague. 9.15,** Light Music on Gramophone Records. **10.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—**12 Noon,** Italian Music on Gramophone Records: Tarantella, I fidanzati (Gabaverni); Waltz, La Strega (Arditi); Neapolitan Tarantella (Rossini); Maria, Mari (di Capua); Mama mia (di Capua); Napoli (Charpentier); Two Symphonic Dances (Coppola): (a) Habanera, (b) Blues; Tarantella and Dances from La Giara (Casella). **12.40 p.m.,** Songs by M. Jacquier (Tenor); Aimons-nous (Saint-Saëns); Serenade from L'Amant Jaloux (Grétry); Paysage (Hahn). **1.0,** Le Journal Parlé. **1.10,** Saint-Saëns Concert by the Small Station Orchestra, conducted by P. Leemans: Marche militaire; Suite for Small Orchestra; Cavatina; Allegro appassionato; Prelude to Le Déluge; La Cloche; Prélude and Cortège from Déjanire; March from Etienne Marcel. **5.0,** Concert of Viennese Music by the Radio Orchestra, conducted by Franz André: Wiener Operetten Revue (Robrecht); Selection from Der Orlov (Granichstaedten); Grand Potpourri (Eysler); Potpourri Fortissimo (Kálmán); Selection from Die Zigeunerprimas (Kálmán); Selection from Paganini (Lehar). **5.30,** Programme for Children. **6.5,** Literary Review. **6.15,** Pini di Roma (Respighi), on Gramophone Records. **6.30,** Sacred Music. **7.15,** Film Review. **7.30,** Talk for Women. **8.0,** Concert by the Radio Orchestra, conducted by Franz André; Soloist: Santi Valenti (Violin): Summer Days Suite (E. Coates); Rhapsody in Blue (Gershwin); Burlesque (Poot); Violin Solos: (a) Melody (Joachim), (b) Tzigane (Ravel). **8.45,** Talk: The Women and the Crisis. **9.0,** Concert (contd.): Concerto (Nardini); Symphonie fantastique (Berlioz). **9.45,** Gramophone Records: Chamber Music (Bach); Chamber Music (Händel); La Poule (Rameau); Sarabande and Gavotte from the Third Suite (Bach). **10.0,** Le Journal Parlé. **10.10,** Request Gramophone Records: The Hunters' Chorus from Der Freischütz (Weber); Index from Mors et Vita (Gounod); The Death of Aase (Grieg); Dances from La Vida breve (Falla); Norwegian Rhapsody (Lalo); Air from Platée (Rameau); Sarabande (Ferroud); Prelude to Christopher Columbus (Carillo). **10.55,** Christus Vincit (Liszt).

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish.—**12.0** Noon, Concert by the Small Station Orchestra, conducted by P. Leemans. Overture, The Bohemian Girl (Balfe); Ballet Music from Les deux pigéons (Messager); A Musical Snuff Box (Nivolaiewsky); Pianoforte Solos: (a) (Sevilla (Albéniz), (b) Asturias (Albéniz); Violin Solo: Habanera (Sarasate); Waltz, Then you'll remember Vienna (Romberg); Selection from Ein einzige Nacht (Stolz). **1.0 p.m.,** Journal Parlé. **1.10,** Gramophone Concert of Opera Music. Overture and Bell Song from Lakmé (Delibes); Aria from Manon (Massenet); Meditation from Thais (Massenet); Arias (Verdi) from: (a) La Traviata, (b) Rigoletto; Selection from Rigoletto (Verdi); Aria, Adieu, notre petite table, from Manon (Massenet); Aria from Mirella (Gounod); Overture, Mirella (Gounod). **5.0,** Concert by the Symphony Orchestra, conducted by Jean Kumps: Suite pour mes petits amis (Pierné); Danse enfantine (Honegger); L'enfant et les sortilèges (Ravel); Scène enfantine (Brussemans); L'enfant prodigue (Debussy); Suite, Children's Corner (Debussy). **5.45,** Programme for Children. **6.30,** Concert by the Small Station Orchestra, conducted by J. Leemans. Soloists: Wigy and Michot (Violines) and Douliez (Pianoforte). Carnival Overture (Dvorak); Elegiac Melodies (Grieg); Humoresque for Two Violins and Pianoforte (Douliez); Pianoforte Solo, Le livre des petits (Lemaire); Slav Rhapsody No. 2 (Friedemann). **7.15,** Monthly Talk by Mil Frantzen. **7.30,** Journal Parlé. **8.0,** Variety Concert. Louis Belloy (Recitations), Van Looy (Saxophone), Albert Remy (Humorous Items), and the Havana Jazz Band. March, Alte Kameraden (Teike); Selection from Les Saltimbanques (Ganne); Selection from White Horse Inn (Benatzky); Recitation, The Unknown Soldier (Bevoshuis); Saxophone Solo: Waltz, Vanity (Wiedoeft); Tango, Was ist denn dabei (Samek); Selection from The Merry Widow (Lehár); Potpourri, Einfachfabelhaft (Dostal); Recitations; Saxophone Solo, Liebesfreud (Kreisler); Waltz, Meine Liebe blüht alle Jahre (Salter). In an interval, Talk: The Village Carpenter. **10.0,** Journal Parlé. **10.10,** Concert (contd.). Foxtrot (Bee); Foxtrot, One Day (Packay); Humorous Items; Foxtrot, Black Heaven (Bee); Potpourri, 1800-1900; Humorous Items; National Melody. **11.0** (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—**5.25 p.m.,** Concert by the Motoi Orchestra. **6.0,** Talk on Romanian Industries. **6.40,** Variety Music on Gramophone Records. **7.0,** Song Recital by Ellen Sarsen: Agnus Dei (Mozart); Aria and Elegy from Werther (Massenet); Down in the Forest (Landon Ronald); Es muss ein Wunderbares sein (Liszt); Song (Grieg); Snow (Lie); Mariä Wiegenlied (Reger). **7.20,** Symphony Concert, conducted by T. Rogalski. Soloists: E. Stein (Pianoforte) and T. Lupu ('Cello). Overture (Sibiano); Concerto in C minor for Pianoforte and Orchestra (Mozart); Symphonic Variations for 'Cello and Orchestra (Boëllmann). **8.0,** Talk. **8.1,** Concert (contd.): Second Symphony in C (Schumann). **8.45,** News

BUDAPEST

550 metres; 18.5 kW. Programme also relayed on **840 metres** from **6.25 to 11.0 p.m. 4.0 p.m.,** Song Recital by Josef Szterenyi and Astri Kalseth: Duet from Hamlet (Thomas); Song from The Barber of Seville (Rossini); Nedda's Song from I Pagliacci (Leoncavallo); Farewell from Dorottya (Kacsoh); Song from Bánk bán (Erkel); Song from Der Freischütz (Weber); Duet from Rigoletto (Verdi). **4.45,** Reading. **5.15,** Light Music on Gramophone Records. **6.0,** Programme by Albin Lingauer. **6.30,** La Traviata—Opera (Verdi), relayed from the Royal Hungarian Opera House. In the intervals, News. After the Programme, Cigány Music from the Hotel Britannia. **11.0** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Time and Chimes from the Town Hall. **11.2,** Concert by the Harald Andersen String Ensemble, relayed from the Bellevue Strandhotel. **1.0 to 2.0 p.m.,** Interval. **2.0,** Concert by the Radio Orchestra, conducted by Launy Grövdahl: Turkish March from The Ruins of Athens (Beethoven); Overture, Leonora Christina (Salomon); Waltz, Manola (Waldteufel); Kermesse and Chaconne (Durand); Fantasia on Polish Songs and Dances (arr. Leopold); Athalia Polka (Lanzky); Prelude to Act. II of Saul and David (Carl Nielsen); Two Danish Folk Songs arranged for Strings (Gröndahl); Waltz, Moss Rose (Bosc); Ballet Music from La Juive (Halévy); Festival Polonaise (Poulsen). **4.0, Programme for Children. 4.40,** Exchange and Fish Market Prices. **4.50,** Gardening Talk. **5.20,** German Lesson. **5.50,** Weather. **6.0,** News. **6.15,** Time. **6.30,** Talk. **7.0,** Time Signal from the Town Hall. **7.1,** Orchestral Concert of French Opera Music, conducted by Emil Reesen: Overture, Mignon (Thomas); Ballet Music from Ali Baba (Cherubini); Overture, La dame blanche (Boieldieu); Entr'acte and Bacchanale from Philémon et Baucis (Gounod); Ballet Music from The Cid (Massenet); March from The Queen of Sheba (Gounod). **7.45,** The Quiet Room—Radio Play in Three Acts (Sven Lange). **9.20,** Gramophone Records of Joseph Hislop: Aria, Addio alla madre, from Cavalleria Rusticana (Mascagni); Aria, Che gelida manina, from La

Bohème (Puccini); Mary (Richardson); Evigt dig til Hjertet trykke. 9.30, News. 9.45, Violin Recital by Christian Esbensen: Londonderry Air (Kreisler); Spanish Dance (Granados-Kreisler); Andalusian Romance (de Sarasate); Malaguena (Albéniz). 10.5, Dance Music by the Tommy Boston Band, relayed from the Lodberg Restaurant. In an interval at 11.0, Time Signal and Chimes from the Town Hall. 11.30 (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**12.0 Noon,** Military Music. **12.30** p.m., News Bulletin. **12.45,** Sound Film Music. **6.0 to 7.0,** Programme in English by the I.B.C., C. Danvers Walker, R. Chene and B. McNabb announcing. **6.0,** Military Band Concert for Worthing Listeners: March, Step Lightly; In a Chinese Temple Garden (Ketelbey); Wiesbaden March; Overture, La Dame blanche (Boieldieu); Sanctuary of the Heart (Ketelbey); Bosnia; Medley of Leslie Stuart's Songs; Bandmaster March. **6.30,** Concert for Bognor Listeners. Trio: A Night of Happiness; Songs: (a) A Cuban Love Song, (b) In Old Madrid, (c) Falling in love again; Trio: The Wedding in the Ark; Songs: (a) Just one of my Dreams, (b) Take away the Moon, (c) Home. **7.0,** Local News and Popular Music on Gramophone Records. **7.30,** Radio Gazette. **8.0,** The Listeners' Quarter of an Hour and News. **8.15,** Talk. **8.30,** Concert, relayed from **Le Havre. 10.0 p.m.** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music: I wanna sing about you; Little Girl; Ragamuffin Romeo; Three little words; The longer that you linger in Virginia; Go home and tell your Mother; Who am I? Wabash Moon; In a little Rendez-vous; The Match Parade; Two little blue little eyes; Say a little prayer for me; Dancing with the Devil; When the Moon comes over the Mountain; Down Sunnyside Lane; Funny, dear, what Love can do. **11.0,** Orchestral Selections: Waltzes from Vienna (arr. Griffiths); Sunny (Kern); La belle Hélène (Offenbach); Frederica (Lehár); The Merry Widow (Lehár); You are my heart's delight, from The Land of Smiles (Lehár). **11.30,** Concert of Italian Songs: Overture, Figaro (Mozart); Ah si ben mio; O quella Pizi; La Donna e mobile, from Rigoletto (Verdi); Selection from Il Seraglio (Mozart); Una furtiva lagrima, from L'Elisir d'Amore (Donizetti); Addio, Mignon, from Mignon (Thomas); M'appari tutt' amor. **12 Midnight,** Variety Concert: You rascal you; Sweet Caroline; Mein leedle Boy; The Golden Bird; Baby won't you please come home? Murphy's Hotel; Laughing Gigolo; Will anybody have a drink? **12.30 a.m. (Wednesday),** Scottish Songs; Annie Lauri (Traditional). Violin Solo: The Logie o' Buchan; Loch Lomond (Traditional); March of the Cameron Men (Moffatt). Violin Solo: John Anderson; Duncan Gray (Traditional); Yu banks and braes (Traditional); The Piper o' Dundee. **1.0,** Accordion Solos: Petit Jean (Cuvelier); March, Return of Johnnie; Triumph of Eros (Cuvelier); Waltz, Mirella (Charlier); La Java de Doudonne; Ragtime Medley; The Skaters' Waltz (Waldteufel). **1.30,** Concert of Songs: Meet me in my dreams to-night; Charming; Dream Lover; Orchestra: Ragpicker's Party; Shepherd's Serenade; My Love Parade; Excuse me, Lady. **2.0,** Dance Music: After your Kiss; Any time's the time to fall in love; Happy Feet; On the Sunny-side of the Street; The Gipsy Melody; Once in a while; The Harbour of the heart; If I had a girl like you; Sitting on a Rainbow; Song of Swanee; Sweeping the clouds away; A Bench in the Park; Exactly like you; Meet me in my dreams to-night; One Mad Kiss; Hallelujah. **2.57,** I.B.C. Goodnight Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259 metres; 17 kW; **CASSEL, 245.9 metres;** and **TRIER, 259.3 metres.**—**5.25 p.m.,** Nineteenth Century Home Life—Sketches by Dr. Helene Turnau. **5.50,** Dialogue: Hessian Soldiers in France. **6.15,** Time, Programme Announcements, Weather, and Exchange. **6.30 to 8.0,** See **Stuttgart. 8.0,** Concert of Operetta Music by the Station Orchestra, conducted by Reinhold Merten. **9.0,** Time, News, Weather and Sports Notes. **9.30,** See **Stuttgart. 11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse); **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.**—**6.0 p.m.,** Agricultural Talk. **6.25,** Weather Report. **6.30,** Concert of Folk Music by the Station Orchestra, conducted by Adolf Secker: Husarenritt (Spindler); Potpourri, Musikalische Täuschungen (Schreiner); Still wie die Nacht (Bohm); Der kreuzfidele (Kupferschmied (Peter); Potpourri of Rheinländers (Kernbach); The Mill in the Black Forest (Eilenberg); Berliner Kreuzpolka (Daase); Alsatian Peasant Dances (Merkling); March, Washington Post (Sousa). **7.30,** De Dörpdokter—Play in Three Acts (Jan Fabricius) (Translated into North German Dialect by Hermann Quistorf). **9.0,** News Bulletin. **9.20,** Topical Talk. **9.30** (from **Flensburg**), Concert of German Music by the Municipal Orchestra, conducted by Kurt Barth: Overture, Beherrscher der Geister (Weber); Third Movement from the Ninth Symphony (Beethoven); Choral Variations on Ein' feste Burg (von Waltershausen); Four Movements from the Serenade Mit dem Posthorn (Mozart); Fantasia in F Minor (Schubert-Mottl); Two Pieces from Kinderszenen (Schumann); Polonaise (Svendsen). **10.20** (in an interval), Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW.; and **DANZIG, 453.2 metres.**—**12.5 p.m.,** Gramophone Concert of Popular Music. In the interval at **12.20,** News. **1.30,** Sponsored Programme with Gramophone Records. **2.0,** Exchange and Market Prices. **2.30,** Musical Improvisation for Children. **3.0,** Concert by the Little Orag Orchestra, conducted by Eugen Wilcken. Overture, Giovinezza allegra (Cortopassi); Waltz, Illusions (Waldteufel); Ballet des Parfums (Popy); Potpourri of Offenbach Music (Urbach); Suite campestre (Amadei); Waltz, O schöner Mai (Joh. Strauss); Reminiscences of Capri (Becce); Tango, Marion (Panizzi); Selection from The Arabian Nights (Joh. Strauss). **4.45,** Review of Books. **5.15,** Market Prices. **5.20,** Ice Report. **5.30,** Talk on Handicraft. **6.0,** Song Recital by Hans Eggert. Three Songs (Erwin Lendvai): (a) Abbitte, (b) Einsamkeit, (c) Das Bleibende im Wandel; Three Songs: (a) Dünenlied (Paul Graener), (b) Die Düne (Gerd Ochs), (c) Taufe auf der Nehrung (Gerd Ochs); Two Lithuanian Songs (Armin Knab): (a) Die Quelle, (b) Der Abschied. **6.30,** Shorthand Dictation. **7.0,** Weather and News. **7.10,** A Little of All Sorts—A Variety Programme. **9.10,** Weather, News and Sports Notes.

HILVERSUM

Announced **HUIZEN, 295.1 metres;** 20 kW. (7 kW. up to **4.40 p.m.**).—**11.55 a.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). **11.55 a.m.,** Concert by the K.R.O. Orchestra, conducted by Johan Gerritsen. **1.40 p.m.,** Talk. **2.15,** Programme for Women. **3.10,** Dressmaking Lesson. **4.10,** Concert by the K.R.O. Sextet: Hungarian March (Naef); Nocturne (Chopin); Frühlingstau auf Schumanns Grab (Urbach); March of the Dwarfs (Grieg); Potpourri (Aston-Ketelbey); Selection from Werther (Massenet); Minuet (Beethoven). **5.10,** Violin and Pianoforte Recital by L. van Wijngaarden and J. Ligtemijn: Sonata Op. 11, No. 1 (Schäfer); Sonata Op. 25 (Sigtenhorst-Meyer); Sonata (Andriessen). **6.10,** Esperanto Lesson. **6.30,** Concert by the K.R.O. Sextet, conducted by P. Lustenhouwer: Potpourri, Hail America (Lubbe); Waltz, Etincelles (Waldteufel); La bella Tangolita (Abraham). **6.50,** Variety Music on Gramophone Records. **7.25,** Talk. **7.40,** Sacred Concert, conducted by Professor E. Féron: Miserere, Meditation on the Passion; Chant triste (Bonnet); Panis angelicus (Haller); Ave Regina Coelorum; Selection from Stabat Mater (Franssen); Tantum ergo (Zeyen); Chant séraphique (Guilmant). **9.10,** News Bulletin. **9.15,** 'Cello and Pianoforte Recital by C. van Leeuwen Boomkamp and E. van Beinum: Sonata in C (Boccherini); Arpeggione Sonata (Schubert); Sonata in E Minor, Op. 38 (Brahms). **10.10,** Popular Music on Gramophone Records. **10.40,** News Bulletin. **10.45,** Light Music on Gramophone Records. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres;** 8.5 kW.—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.10 a.m.,** Organ and Song Recital by P. van Egmond and M. v.d. Kraan. **12.10 p.m.,** Concert by the Small Station Orchestra, conducted by Nico Treep: Musical Comedy Overture (Lincke); Selection from La Traviata (Verdi); Simple aveu (Thomé); Love Song (Paderewsky); March, El Capitan (Sousa). **1.55 to 2.10,** Interval. **2.10,** Concert (contd.): Overture, Alessandro Stradella (Flotow); Puppenspiele (Lederer); Selection from The Gipsy Baron (Joh. Strauss); March (Lincke). **2.40,** Talk. **3.40,** Light Music on Gramophone Records. **4.10,** Concert by a Children's Choir, conducted by Jacob Hamel. **4.40,** Programme for Children. **5.10,** Talk. **5.40,** Concert by the Station Orchestra, conducted by Nico Treep: Overture, Les Dragons de Villars (Maillart). In the Harbour of Port Said (Armandola); Waltz, Gold and Silver (Lehár); Russian Song (Smith); Melody (Myddleton). **6.10,** Talk. **6.40,** Concert (contd.): Rhapsody Rag (Lenzberg); A Mediterranean Cruise (Jalowicz), Macht Platz der Jugend (Leopold); Im Rosengarten Mendelssohns (Urbach); Waltz, Wiener Kinder (Jos. Strauss); March, Wien bleibt Wien (Schrammel). **7.10,** English Lesson. **7.40,** Time Signal. **7.41,** Light Music on Gramophone Records. In the interval, News. **8.40,** Scenes from A Doctor's Dilemma—Play (Bernard Shaw). **9.40,** Concert of Light Music by Kovacs Lajos and his Orchestra; Soloist, Bob Scholte (Songs). **10.40,** News. **10.50,** Concert (contd.). **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

473 metres; 60 kW.—**12 Noon,** Concert, conducted by Wolf: March, Deutschland Heil (Albus); Waltz, O Frühling wie bist du schön (Lincke); Overture, Der Opernball (Heuberger); Symphonic Andante, Lovely Night (Clemus); Barbarina (Clemus); Selection from The Sunken Bell (Respighi); Waltz - Intermezzo, Poranek (Lindsay); Spanish Dance (Schmeling); Procession of the Bacchantes (de Tacy); Selection from The Merry Peasant (Fall); Gallop, Im D-Zug (Blon). In the interval at **1.0 p.m.,** News. **1.30,** Sponsored Programme with Gramophone Records. **2.30,** Economic Notes and Time. **2.50,** Programme for Children. **3.20,** Notes on the Broadcasts for Schools. **3.30,** Talk: Frontier Problems from a Geographical Point of View. **4.0,** Concert, conducted by Wolf: Festival Overture in F (Kalliwoda); Fantasia, Der ewige Verdi (Morena); Suite from Friedemann Bach (Geisler); Waltz, Morgenblätter (Strauss); Selection from Pole Poppenspäler (Stierlin); Selection from Eva (Lehár). **5.15,** Italian Lesson. **5.45,** Weather, Time, Economic Notes and Sports Results. **6.0,** Agricultural Talk. **6.20,** Topical Talk. **6.30,** Talk on Retail Trade. **6.55,** News. **7.0,** Recital on Two Pianofortes by Egbert Grape and Dr. Karl Lenzen: Sonata in F Minor, Op. 34b (Brahms); March, (Rachmaninov); Tarantella (Rachmaninov). **7.45,** Die Flucht vor der Freiheit—Radio Play (Fred von Hoerschelmann). **9.5,** News, Sports Notes and Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW; and **DRESDEN, 319 metres.**—**12.15 p.m.,** Gramophone Concert of Schubert and Schumann Music: Andante con moto from the Symphony in B Minor (Schubert); Impromptu in B flat (Schubert); Scherzo from Symphony No. 2 in C (Schumann); Scherzo and Theme with Variations from the Trout Quintet (Schubert); Three Pieces from Kinderszenen (Schumann); Hungarian March (Schubert). After the Concert, Exchange Quotations. **1.0 p.m.,** Talk on the Unemployed. **2.0,** Review of Books of Games for Young People. **2.35,** Exchange and Market Prices. **3.0,** Talk: Work for the Blind. **3.30,** Concert of Waltzes by the Leipzig Symphony Orchestra, conducted by Hilmar Weber: Love Waltz from Op. 130 (Reger); Waltz in F (Schaub); Concert Waltz in D, Op. 47 (Glazunov); Hilmar Waltz (Dehnert); Festwalzer (Lampe); Künstlerball (Fritz Blumer); Spanisches Liebesleben, Op. 50 (Vollstedt). **4.30,** Weather and Time. **4.50,** Exchange Quotations. **5.5,** Talk: The Films as a Career for Women. **5.30,** French Lesson. **5.50,** Talk: The Forest Theatre at the Foot of the Wartburg. **6.0,** Talk: The Lives of the Great Religious Founders. **6.30,** Concert of Light Music by the Station Orchestra, with Song Refrains by Gustav Jakoby. Introductory Talk. Overture, La belle Hélène (Offenbach); Humorous Pieces; Potpourri, Wir stellen uns vor (Golwyn); The World of Today in a Mirror. German Folk Song Potpourri. With Laughing Eyes through Germany. March. Mit Eichenlaub und Schwertern (Blon). **8.0,** Economic Questions of the Day. **8.5,** News Bulletin. **8.15,** Reinhold Michael Lenz, one of Goethe's Circle—Radio Play (Fritz Peter Buch). **9.15,** News Bulletin. **9.30** (approx.), Concert by the Dresden Philharmonic Orchestra, conducted by Theodor Blumer. Soloists: Elisa Stunzner (Soprano), and Günther Baum (Baritone): Prelude to Gaudeamus (Humperdinck); Ballad, Spielmannslied (Moos); Songs (Johannes Schanze): (a) Kindheit, (b) Lied, (c) Der Musikant, (d) Ballad; Hunting Overture (Künnecke); Three Sacred Songs, Op. 13 (Neubeck): (a) Wann?, (b) Müde, (c) Dass du mein gewesen; Serenade for Thirteen Wind Instruments (Richard Strauss); Glockenlieder, Op. 22 (Max von Schillings): (a) Die Frühglocke, (b) Die Nachzügler, (c) Ein Bildchen, (d) Mittagskönig und Glockenherzog. Overture, Am Rhein (Kaun). **11.0** (approx.), Close Down.

LINZ.—See **Vienna.**

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South-East. **8.30,** Briand Memorial Programme; Music by an Orchestra and Choir conducted by M. Inghelbrecht; Soloists, Mme. Frozier, M. Roger Bourdin, and Mme. Balguer (Songs): Prelude to Messidor (Bruneau); Air from L'Attaque du Moulin (Bruneau); Invocation (Schmidt); La Mer (Debussy); Songs: (a) Le Cimetière (Fauré), (b) Le Voyageur (Fauré); Hymn to Justice (Magnard); Address; Symphonic Poem, Death and Transfiguration (Richard Strauss); Chant funèbre (Chausson); Songs: (a) In Questa Tomba Oscura (Beethoven), (b) Träume (Wagner), (c) Nocturnes (César Franck); Hymn (Cherubini); L'Apothéose (Berlioz). After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAQ); 30.43 metres; 20 kW.—**10.30,** Popular Concert. **10.45,** Radio Chronicle. **11.0,** Popular Concert (contd.). **11.40,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO; Call EAJ7; 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, and Request Gramophone Concert. **7.15,** Medical Talk. **7.30,** Talk by Joaquin España Cantos, and Request Gramophone Concert (contd.). **8.15,** News Bulletin and Political Review. **8.30 to 9.0,** Interval. **9.0,** Linguaphone English Lesson. **9.30,** Chimes, Time Signal, Political Review, and Extracts from Il Trovatore—Opera (Verdi), on Gramophone Records. **11.45,** News Bulletin. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**3.10 p.m.,** Concert of Popular Music and Dance Music by the Station Orchestra, conducted by J. Plichta. **4.10,** See **Prague. 4.50,** Programme from **Brno. 5.0,** Talk: Famous Musicians of the Early Middle Ages. **5.15,** See **Prague. 5.25,** See **Brno. 5.55,** See **Prague. 9.15,** Light Music on Gramophone Records. **10.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**4.30 p.m.,** Relay of a Sound Film. **5.30,** Concert, relayed from the Conservatoire. **8.0,** Talk in French: The Wage Conditions of the Soviet Worker.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres,** and **Nürnberg, 239 metres.**—**3.45 p.m.,** Concert, conducted by Erich Kloss: Overture, The Black Domino (Auber); Adagio from the Pathetic Sonata (Beethoven); Davidsbündler-Marsch (Schumann); Prelude in E Minor and the Raindrops Prelude (Chopin); Suite, Nell Gwynne (German); Bei der Zigeunerkapelle (Meyer-Helmund). **4.45,** Report on a Visit to a School of Printing. **5.15,** Talk: The Roman State. **5.35,** Talk: Frederick Barbarossa and the Emperor Henry VI. **5.55,** Time, Weather, and Agricultural Notes. **6.5,** Talk by Kurt Seeger. **6.25,** Dramatic Programme: Die schö' cenzi vo' Mittnwald—Upper Bavarian Operetta (Kobell); Brantschau—One-Act Farce (Ludwig Thoma). **8.5,** The Last Watch—a Story of the Thirty Years' War (Walter Flex). **8.20,** Recital of Duets by Lucie Hartmann (Soprano) and André Krenchauff (Tenor); Selig wir from Acis und Galatea (Händel); Duets (Schubert): (a) Nur wer die Sehnsucht kennt, (b) Licht und Liebe; Duets (Schumann): (a) Er und sie, (b) Die tausend Grüsse. **8.45,** Violin Recital by Willy Stuhlfauth Sicilienne and Rigaudon (Francoeur-Kreisler); Chassidische Stimmung (Bloch); Mondnacht auf dem Bosporus (Vecsey); Schön Rosmarin (Kreisler); Waltz (Weber-Burmester); Spanish Dance (de Sarasate); Old Irish Song (arr. Kreisler); Slav Dance (Dvorák-Kreisler); Tambourin chinois (Kreisler). **9.20,** Time, Weather, News, and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres;** and **Rjukan, 447.1 metres.**—**5.45,** Accordion Solos. **6.0,** Announcements, Weather and News. **6.30,** English Lesson. **7.0,** Time Signal. **7.1,** Talk. **7.30,** Concert by the Station Orchestra, conducted by Hugo Kramm: Overture, Fra Diavolo (Auber); Grieg Potpourri (Urbach); Tambourin (Rameau); Romance (Wieniavski); Ich grolle nicht (Schumann); Die beiden Grenadiers (Schumann); Hymn (Reidarson); Potpourri, Around the World (Yoshitomo). **8.40,** Weather and News. **9.15,** Reading. **9.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—**7.0 p.m.,** Dopolavoro Notes, Tourist Report, Agricultural Notes, and Giornale Radio. **7.20,** Variety Music. In an interval at **7.30,** Time and Announcements. **7.45,** Falstaff—Opera (Verdi), on Gramophone Records. In the intervals, Talk and Art Notes. **9.55,** News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—Time Signals (on 2,650 metres at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals). **5.45 p.m.,** Le Journal Parlé. **7.20,** Weather Report. **7.30,** Themes and Variations—Pianoforte Recital by Marie Antoinette Pradier; Music by Haydn, Mozart, Beethoven, and Fauré, with Commentary by André Delacour. **8.0,** Concert by the Firmin Touche Quartet: Quartet in C—the Emperor (Haydn); Quartet in A Minor (Cellier). **9.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Sponsored Concert with Gramophone Records. **8.0,** Film Talk. **8.5,** Legal Talk. **8.15,** Interval. **8.30,** Orchestral Concert, conducted by Théodore Mathieu: Symphony in D—the Clock Symphony (Haydn); Concertante Symphony (Mozart); Overture, Coriolanus (Beethoven); Overture, Nocturne, Scherzo, and March from A Midsummer Night's Dream (Mendelssohn). **10.30,** News.

PARIS

RADIO PARIS; Call CFR, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Gramophone Records: (a) Selection from O'Kay (Gershwin), (b) Saxophone Marmalade (Rozenthal), (c) Variations on a Russian Theme (Krotkov). **8.0,** Press Review and Weather. **12.0 Noon,** Concert by the Krettly Orchestra. Overture, The Black Domino (Auber); Selection from The Barber of Seville (Rossini); Overture, Mireilla (Gounod); Dance of the Hours, from La Gioconda (Ponchielli); Selection from La Navarraise (Massenet); Entr'acte Music from Carmen (Bizet); Two Arias from Lakmé (Delibes), on Gramophone Records; Selection from Morning, Noon and Night (Suppé); Roses of Picardy (Wood); Madrileña (Infante); Salut d'amour (Elgar); Russian Dance (Moszkovsky); Serenade (Albéniz); Cordoba (Albéniz); The Nutcracker Suite (Tchaikovsky); The Dryads (Raff). In the intervals at **1.0 p.m.,** Exchange News and Weather, and at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **4.30,** Advanced English Lesson. **4.50 to 6.10,** Interval. **6.10,** Agricultural Talk. **6.30,** Weather, Agricultural Notes and Market Prices. **6.50,** Theatre Review. **7.5,** Talk on Art. **7.20,** Concert by the Krettly Orchestra. Cantilène (Boisdeffre); Incanto (Rousseau); Romance (Busser); Mandolinata (Paladilhe); Farandole (Michiels); Napoli (Mezzacapo). **7.45,** Review of the British Press. **8.0,** Manon—Opera (Massenet), by the Cast of the Opéra-Comique, on Gramophone Records. In the intervals at **8.30,** News and Weather; at **8.40,** Review by Pierre Scize, and at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KOKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.—9.0 p.m.,** Work-a-day Thoughts. **9.5,** Business News. **9.15,** Programme to be announced. **9.30,** Weather Report. **9.31,** Market Reports. **9.45,** Johnny Muskrat. **9.50,** David Lawrence Dispatch. **9.58,** Programme Announcements. **10.0,** Programme to be announced. **10.15,** Adventures of Dr. Dolittle, from **New York. 10.30,** The Singing Lady, from **New York. 10.45,** Booth Tarkington's Maude and Cousin Bill, from **Nsw York. 11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.27,** Strange Facts. **11.29,** Temperature Report. **11.30.** KDKA Orchestra. **11.45 to 3.45 a.m. (Wednesday), New York** Relay. **11.45,** To-day's News by Lowell Thomas. **12.0 Midnight,** Pepsodent Amos 'n' Andy. **12.15,** National Advisory Council on Radio in Education. What is the matter with the State Legislatures? by Akberg W. Atwood, Political Writer, and Pro. John A. Lapp. **12.45,** The Townshend Murder Mystery. **1.0,** Eno Crime Club. **1.30,** Time Signal and Adventures in Health. **1.45,** Phillips Lord in The Country Doctor. **2.0,** Household Musical Memories. **2.30,** Willard Robinson's Deep River Orchestra. **3.0,** The Tune Detective. **3.15,** Vic and Sade. **3.30,** Homay Bailey and Orchestra. **3.45,** Bradley Kincaid. **4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.15,** Press Last Minute News Flashes. **4.20,** Smith Ballew and his Orchestra. **4.58,** KDKA Artist Bulletin. **5.0,** Cotton Club Orchestra, from **New York. 5.30,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.,** See **Moravská-Ostrava. 4.10,** Talk on Economics. **4.20,** Czech Lesson for Germans and German Lesson for Czechs. **4.50,** Variety Music on Gramophone Records. **5.5,** Market Prices and Exchange. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission: Reading from the Works of Masaryk. **5.55,** News Bulletin. **6.5,** Talk. **6.20,** Talk on the following Transmission. **6.30,** The Jacobin—Opera in Three Acts (Dvorák), relayed from the National Theatre, in Honour of President Masaryk's Birthday. In the interval at **8.0,** Time Signal. **9.0,** Time Signal. **9.1,** News Bulletin. **9.15,** Variety Music on Gramophone Records. **10.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.—5.0 p.m.,** Medical Talk. **5.20** (from **Geneva**), English Lesson. **6.0** (from **Lausanne**), Weather Forecast, News and Announcements. **6.20** (from **Geneva**), Answers to Correspondence. **6.30** (from **Geneva**), Concert of New Gramophone Records. **7.0** (from **Geneva**), Cabaret Programme. **8.0** (from **Lausanne**), Les Hôtes de la Nuit Sketch (Paul Virès and Henry Mugnier). **8.30** (from **Lausanne**), Choral Music from Henriette—Musical Play (René Morax and Gustave Doret). **9.0,** News Bulletin and Weather Forecast. **9.10** (from **Geneva**), Talk: The Work of the League of Nations. **9.20** (from **Lausanne**), Dance Music, relayed from the Bel-Air Métropole. **10.0** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO; 441 metres; 50 kW. Relayed by **Naples (319 metres,** and **2RO, 25.4 metres.—7.0 a.m.,** Gymnastics. **7.15 to 7.30,** Giornale Radio and Announcements. **11.30,** Weather and Light Music on Gramophone Records. **12 Noon,** Time and Announcements. **12.2 to 1.15 p.m.,** Concert from **Turin.** In the interval from **12.30 to 12.45,** Giornale Radio and Exchange. **3.45,** Children's Radio Review. **4.10,** Announcements. **4.15,** Exchange and Giornale Radio. **4.30 to 5.15,** See **Turin. 6.0 (Naples),** Shipping and Sports Notes. **6.10,** Atmospheric Signals, Agricultural and Dopolavoro Notes. **6.20,** Giornale Radio. **7.0,** Time and Announcements. **7.2,** Talk on Jupiter. **7.15,** Light Music on Gramophone Records. **7.30,** Tourist Report and Sports Notes. **7.45,** Concert. Soloists: Gianna Perea Labia (Soprano), Bruna Franchi (Violin), Ofelia Parisini (Soprano), and Vincenzo Tanlongo (Tenor): Suite for Plucked String Quartet (Scarlatti); Soprano Solos: (a) Canzonetta (Carissimi), (b) Heidenröslein (Schubert), (c) La pastorella (Rossini), (d) Hallelujah (Mozart); Violin Solos: (a) Tambourin (Leclair-Kreisler), (b) Andante cantabile (Sgambati), (c) La campanella (Paganini). **8.30,** Rosalind Comedy in One Act (T. M. Barrie). **9.0** (approx.), Concert (contd.): Extracts from Mephistopheles (Boito); Trio from Crispino e la Comare (Ricci); Prelude to the Fourth Act of Carmen (Bizet). **9.55,** News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.—12 Midnight,** General Electric Programme. **12.15 a.m. (Wednesday),** Stock Reports. **12.30 to 3.0, New York** Relay. **12.30,** Hotel St. Regis Orchestra. **12.45,** The Goldbergs—Comedy Sketch. **1.0,** Blackstone Plantation. **1.30,** Wayne King's Orchestra. **2.0,** Ben Bernie's Blue Ribbon Orchestra. **2.30,** Ed Wynn and the Fire Chief Orchestra. **3.0,** Lucky Strike Hour and Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER; 459 metres; 60 kW.; **BASLE, 244.1 metres;** and **BERNE, 245.9 metres.—9.20 a.m.** (from **Zürich**), Broadcast for Schools: Dialogue on the World Tour of the Giant Seaplane Do X. **9.50 to 11.25,** Interval. **11.28,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40,** Italian Music, by the Radio Orchestra. **12.35 to 12.45 p.m.,** Weather and Exchange. **2.30,** Chamber Music on Gramophone Records. **3.0,** Kindertotenlieder—Five Songs (Mahler), on Gramophone Records. **3.30,** Concert by the Little Radio Orchestra. **4.0,** Variety Music, on Gramophone Records. **4.30,** Weather. **4.35 to 5.30,** Interval. **5.30** (from **Berne**), Talk: Toys for the Nursery. **6.0,** Time and Weather. **6.2** (from **Berne**), Notes on the Broadcasts for Schools. **6.15** (from **Berne**), Talk: German Christian Names. **6.45** (from **Zürich**), Concert of Music of Basle Composers, by the Radio Orchestra and Soloists. **8.30,** Weather and News. **8.40,** Dance Music of the Nineteenth Century, by the Radio Orchestra. **9.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA; 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.—12 Noon,** Broadcast for Schools, relayed from **Jönköping (201.3 metres). 4.5,** Programme for Children, from **Jönköping. 4.30,** Folk Song Recital by Essie Montelius. **4.45,** Variety Music on Gramophone Records. **5.45,** Elementary French Lesson, from **Malmö (231 metres). 6.30,** Talk. **7.0,** Orchestral Concert: Overture, The Daughter of the Regiment (Donizetti); Suite, Scènes pittoresques (Massenet); Selection from Polenblut (Nedbal); Italian Serenade (Fievet); Waltz, Dorfkinder from Zigeunerprimas (Kálmán); Potpourri of Popular Music (Golwyn). **8.15,** Literary Review from **Malmö (231 metres). 9.0,** Concert by a String Orchestra: March, Old Comrades (Teike); Overture, Poet and Peasant (Suppé); Waltz, The Blue Danube (Joh. Strauss); Torna a sorriento (de Curtis); Selection from La Bohème (Puccini); Tango, Jealousy (Gade); Selection from The Gipsy Princess (Kálmán). **10.0** (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.,** Wagner Concert on Gramophone Records: Selection from The Flying Dutchman; Introduction to Act III of Lohengrin; Selection from Tannhäuser; Entry of the Gods from The Rhinegold; The Ride of the Valkyries, from The Valkyries; Selection from Parsifal. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Opera Music on Gramophone Records: Selection from La Bohème (Puccini); Aria, Vissi d'arte, vissi d'amore, from Tosca (Puccini); Aria from Madame Butterfly (Puccini). **2.0 to 4.45,** Interval. **4.45,** Talk in French: Village Industries in Tong-King. **5.0,** Orchestral Concert, conducted by M. Roskam: Soloist, M. Roskam (Violin): March, Kansas City (Benoit); Waltz, Winterstürme (Fucik); Overture, Casanova (Lincke); 'Cello Solo; Selection from Die Fledermaus (Joh. Strauss); Suite, Album pour mes petits amis (Pierné); Valse pondrée (Popy); March (Rosey). **6.0,** Talk: Beautiful Gardens of Former Days—English Gardens. **6.15,** Topical Talk in French. **6.30,** Concert of Jazz Music, conducted by M. Roskam. **7.30,** Time and News. **7.45,** Gramophone Concert of Light Music. **8.20,** Lottery Results. **8.30,** Gala Festival, relayed from Paris. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.—11.0 a.m.,** Gramophone Concert: Overture and Venusberg Scene from Tannhäuser (Wagner); Arias from (a) The Huguenots (Meyerbeer), (b) A Masked Ball (Verdi); Songs (Brahms): (a) O wüsst ich doch den Weg zurück, (b) Sonntag, (c) Meine Liebe ist grün; Suite from Carmen (Bizet); Mattinata No. 2 (Leoncavallo); Les Filles de Cadiz (Delibes); Pasodoble, Rio Rita (Santangini); Wenn wieder Frühling ist (Abraham-Gilbert-Robinson); Foxtrot, Karolin (Weiss-Mann-Beda); Slow Foxtrot, Und der Mond lacht dazu (Meisel); Die frechen Spatzen (Löhr); Der Akrobat (Robrecht); Foxtrot Potpourri, Wir tanzen Weltschlager (Borchert); König-Karl-Marsch (Urath). **12.15 p.m.,** Time, News, Weather, Snow Report, and Programme Announcements. **12.30,** Concert from **Langenberg. 1.0,** Concert arranged by the Post Office. **1.30,** Advanced English Lesson. **3.0,** Horticultural Talk. **3.30,** Talk for Women: The Garden in March. **4.0,** Programme from **Frankfurt. 5.15,** Time, Weather, and Agricultural Notes. **5.25,** Talk: Literature and Philosophy of Life. **5.50,** Talk: Marie Antoinette. **6.15,** Time and News. **6.30,** Concert by the Volga Balalaika Ochestra: Potpourri, Russian Echo (Kremser); Valse Caprice (Andrejev); Russian March (Andrejev); Balalaika Solos: (a) Russian Airs (Kremser), (b) Romanian Song and Czardas (Andrejev); Caucasian Folk Song, Kashek; Dance Song, Messjatz (Andrejev). **7.0,** A Berlin Salon of 1830—Radio Sequence (Oskar Ludwig Brandt), with Music by Prince Louis Ferdinand of Prussia, Reichardt, Zelter, and Others. **8.0,** See **Frankfurt. 9.0,** Time, News, Weather, and Programme Announcements. **9.30,** Dance Music by the Stuttgart Philharmonic Dance Band, conducted by Harry Risch, with Song Refrains by Walter Maurer (Tenor). **11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—**6.0 p.m.,** News Bulletin. **6.15,** Three Movements from the Spanish Rhapsody (Ravel). **6.30,** 'Cello Solos: (a) Les Cloches (Debussy), (b) Orientale (Cui), (c) Harlequin (Popper), (d) Träumerie (Schumann). **6.45,** Light Music. **7.0,** Accordion Music. **7.15,** Racing Results, Market Prices and News Bulletin. **7.25,** Local News. **7.30,** Opera Music: Overture, The Barber of Seville (Rossini); Selection from Tosca (Puccini). **7.45,** Music of the Argentine. **8.0,** Opera Music: Songs from (a) Werther (Massenet), (b) Les Dragons de Villars (Maillart), (c) The Daughter of the Regiment (Donizetti). **8.15,** Concert by a Viennese Orchestra. **8.45,** Extracts from The Merry Widow—Operetta (Lehár). **9.15,** Orchestral Concert: Spring Song (Mendelssohn); Melody (Morena); Hungarian Fantasy; Minuet (Mozart); Melody (Eilenberg); Parade des Petits Lutins. **9.45,** Opera Music: Selection from (a) Aida (Verdi), (b) Lohengrin (Wagner), (c) The Damnation of Faust (Berlioz). **10.0,** Soloist Concert. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco: Blumengeflüster (Blon); Two Airs from La Bohème (Puccini); Selection from William Tell (Rossini); Melody (Marafiotti); Ständchen (Schubert). **11.0,** Chansonettes. **11.15,** Hawaiian Guitar Music. **11.30 to 12 Midnight,** Programme in English by the I.B.C.. H. K. Hitchcock announcing. **11.30,** Dance Music: Marching along together; Mad about the Boy; She was only Somebody's Daughter; The Younger Generation; Marry me; Round the Bend of the Road; After to-night we say Goodbye; Love is the sweetest thing. **1.57,** I.B.C. Goodnight Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Wednesday),** Sound Film Music. **12.15,** Dance Music. **12.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**4.40 to 6.0 p.m.,** See **Turin. 6.0,** Variety Music on Gramophone Records. **6.20** till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.—4.30 to 5.15 p.m.,** Orchestral Concert, conducted by Ugo Tansini: Pattaglia de tzigani (Ranzato); Selection from Turandot (Puccini); Concerto (Gangherger); A suon di campane (Sena). **5.35,** Giornale Radio, Agricultural and Dopolavoro Notes. **6.0,** Light Music on Gramophone Records. **6.20,** Giornale Radio. **6.30,** Time, Announcements, Report of the Royal Geographical Society and Gramophone Records (contd.). **7.0,** Giornale Radio, Weather and Variety Music on Gramophone Records. **7.30,** Eva—Operetta in Three Acts (Lehár). In the interval, Talk and Notes on Art. Giornale Radio after the Operetta.

VATICAN CITY

19.84 metres (Morning) and **50.26 metres** (Evening); 10 kW.—**10. to 10.15 a.m.,** Religious Information in Spanish. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.—4.0 p.m.,** Dance Music by the Charly Caudriot Jazz Band, relayed from Hübners Parkhotel, Schönbrunn. **5.15,** Talk on Forestry. **5.40,** Talk: Between Good and Bad. **6.5,** French Lesson. **6.30,** Time, Weather and Programme Announcements. **6.40,** The Week's Feuilleton. **7.5,** Concert by the D'Lanner Viennese Schrammel Quartet, conducted by Alois Haselbrunner. Soloists: Alois Janisch (Songs) and Richard Neubauer and Franz Rotter (Duets). March, Halloh, du san ma munter (Katzenberger); Waltz Song, Sei mir gut, vergiss mein nicht (Rosenzweig); Die Perle der Frauenwelt (Kratzl); Das Echo der Liebe (Rosenzweig); Tu alles, so lang du kannst (Wondra); Die Arten der Liebe (Sióly); Wenn die Schwalben wieder kommen (Stern); Mein Wien (Blobner); Die Pötzleinsdorferin (Schrammel); Die Welt wär' doppelt schön (Jäger); Mein Herz gehört der Wienerstadt (Arnold); Das Familienglück (Fiebrich); Steirisch-Weanerisch (Kronegger); Schwesa-Marsch (Perik). **8.0,** Concert by the Vienna Symphony Orchestra, conducted by Max von Schillings. Overture and Bacchanale from Tannhäuser (Wagner); Prelude to Der Pfeifertag (Schillings); Harvest Festival from Moloch (Schillings); Symphony in E Flat, Op. 55—the Eroica (Beethoven). **9.30,** News, Weather and Announcements. **9.45,** Dance Music by the Karl Machek Jazz Band, relayed from the Café Splendide.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Bugle Call from the Tower of St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Light Music on Gramophone Records. **12.20 p.m.,** Weather Forecast. **12.25 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.25,** Aviation Report and Anti-gas Drill. **2.30,** Announcements. **2.35,** Book Review. **2.50,** Popular Music on Gramophone Records. **3.20,** Talk on History. **3.40,** Talk: The Development of Polish Towns since the War, relayed from **Lwow (381 metres). 4.0,** Concert by the Warsaw Philharmonic Orchestra, conducted by I. Neumark: Overture, Fingal's Cave (Mendelssohn); Symphony in C (Mozart); Ballet Music from Ali Baba (Cherubini); Symphonic Poem, Vltava (Smetana). In the Interval, News. **4.55,** Programme Announcements. **5.0,** Talk on Polish Literature: Slowacki. **5.20,** Topical News. **5.25,** Light Music from the Ziemiańska Café. **6.0,** Miscellaneous Items. **6.20,** Talk: Agricultural Correspondence Courses. **6.30,** Talk on Beethoven. **6.45,** Radio Journal. **7.0,** Concert by the Radio Orchestra, conducted by Ozimiński; Soloist: W. Niemczyk (Violin): Overture, Bajka (Moniuszko); Love Song and Gipsy Dance from Mauru (Paderevsky); Violin Solos: (a) Lithuanian Song (Szeligowski), (b) Allegretto (Boccherini), (c) Prelude in E (Bach-Kreisler), (d) Berceuse (Fauré), (e) Waltz (Brahms), (f) Polish Dance (Paderevsky); Suite, The Romance of a Mummy (Tcherepnin). **8.0,** Sports Notes. **8.5,** Radio Journal. **8.10,** Concert (contd.): Overture in C, Die Weihe des Hauses (Beethoven); Minuet (Boccherini); Violin Concerto in A Minor (Vivaldi). **8.40,** A Musical Competition. **9.15,** Reading. **9.30,** Dance Music on Gramophone Records. **9.55,** Weather Report and Police Notes. **10.0,** Dance Music from the Bodega Dance Hall.

ZURICH.—See **Schweizerischer Landessender.**

MARCH 7th **TUESDAY** *continued*

Foreign programmes continued on page XIII.

PROGRAMMES CONTINUED

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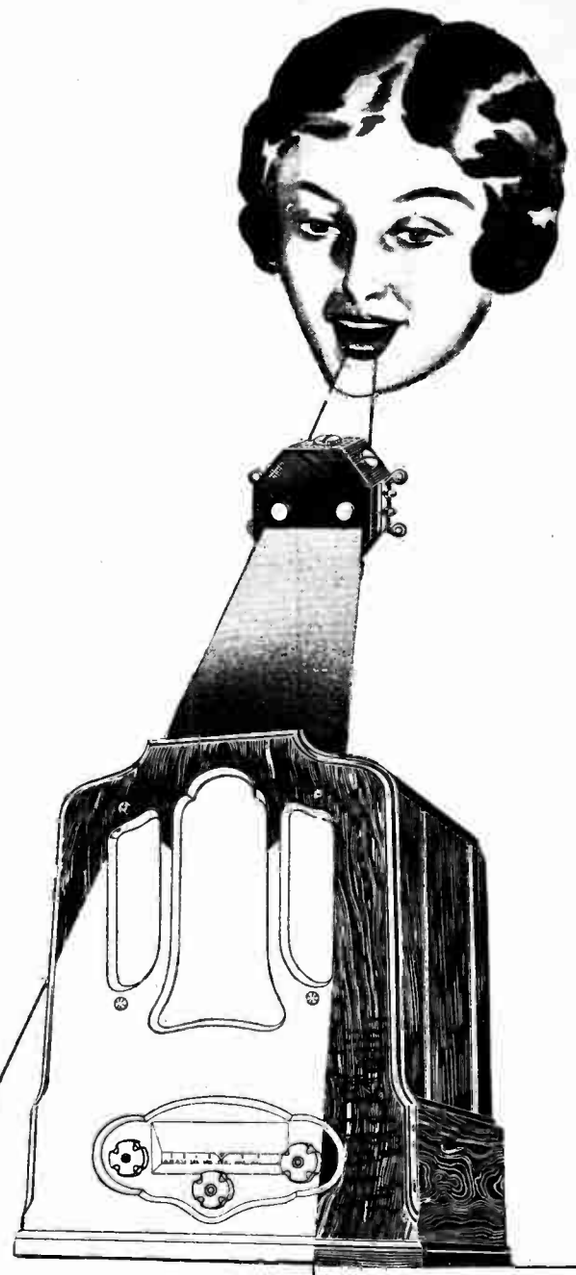

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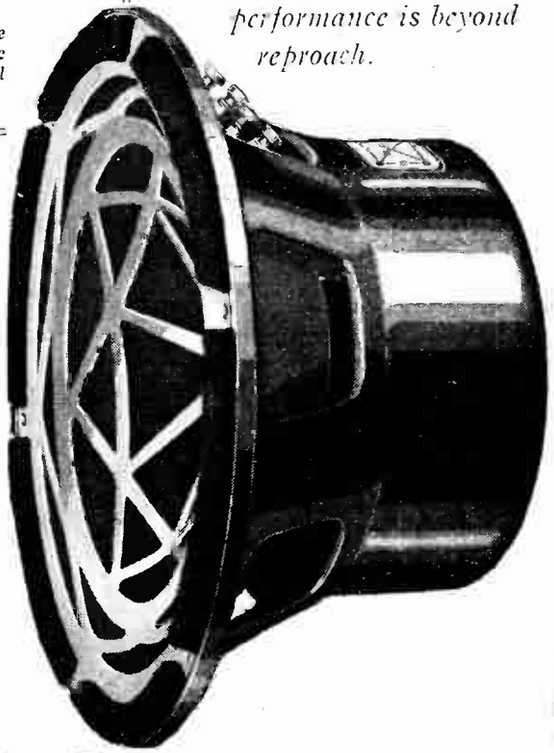

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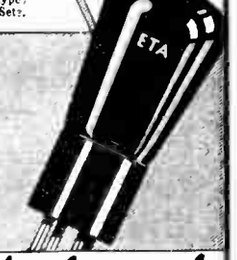

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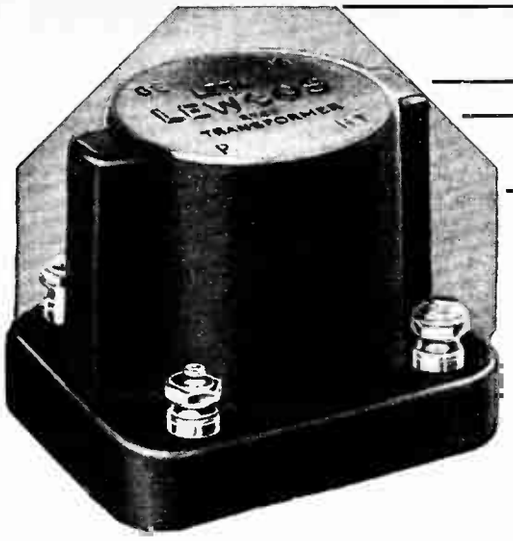

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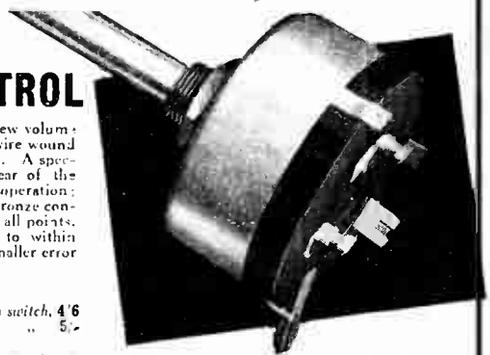

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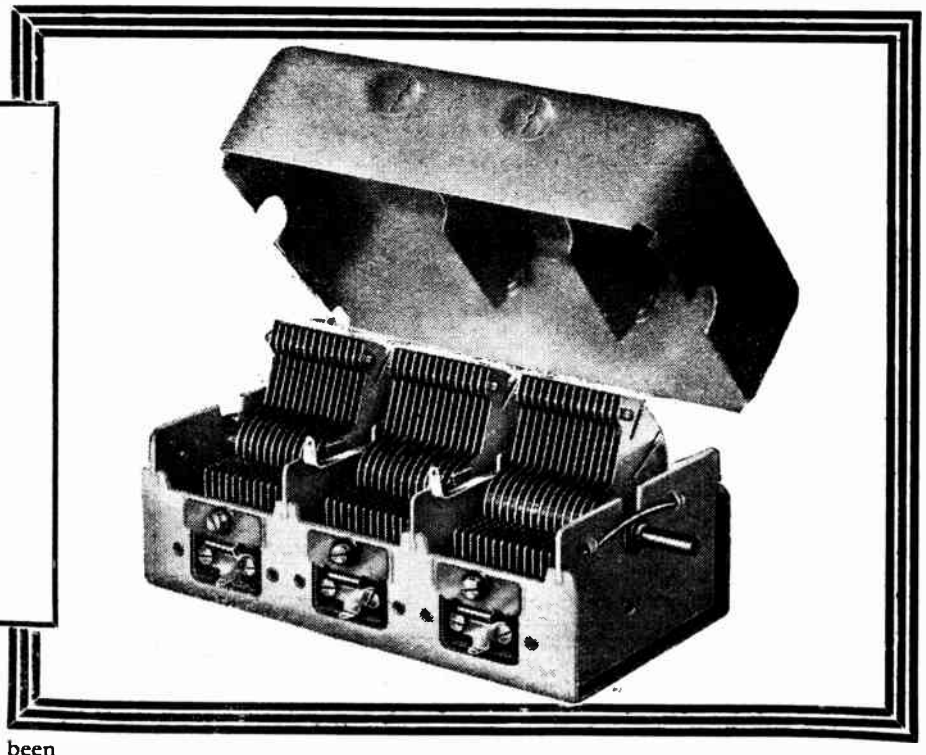

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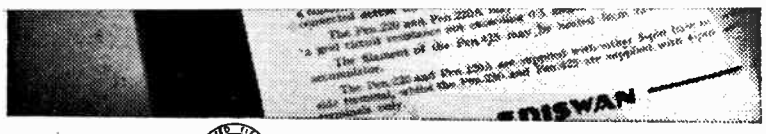

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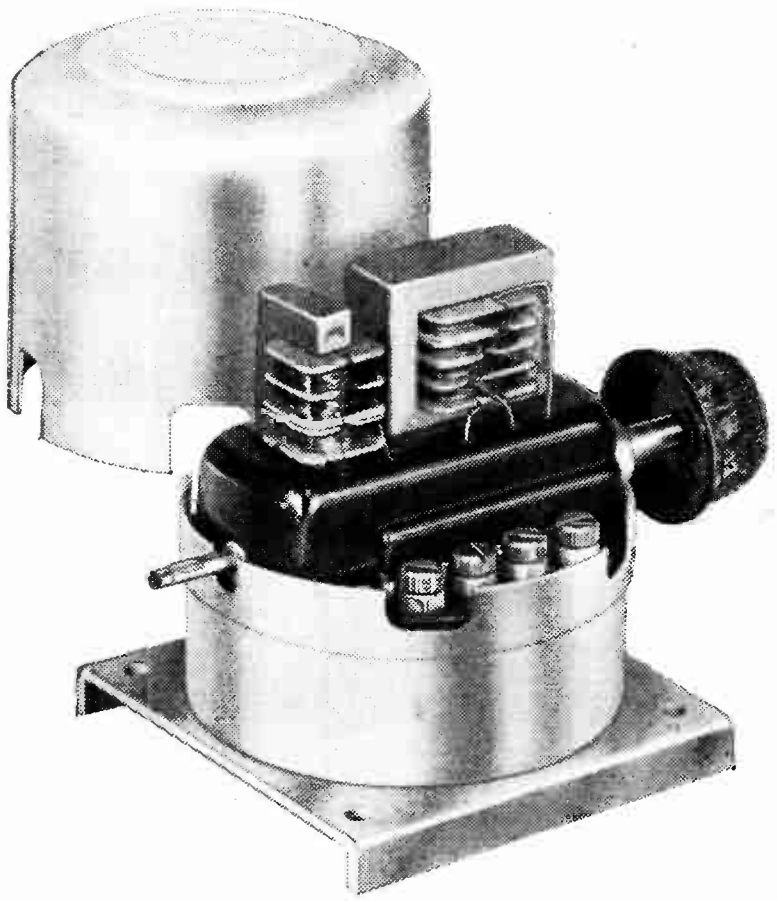

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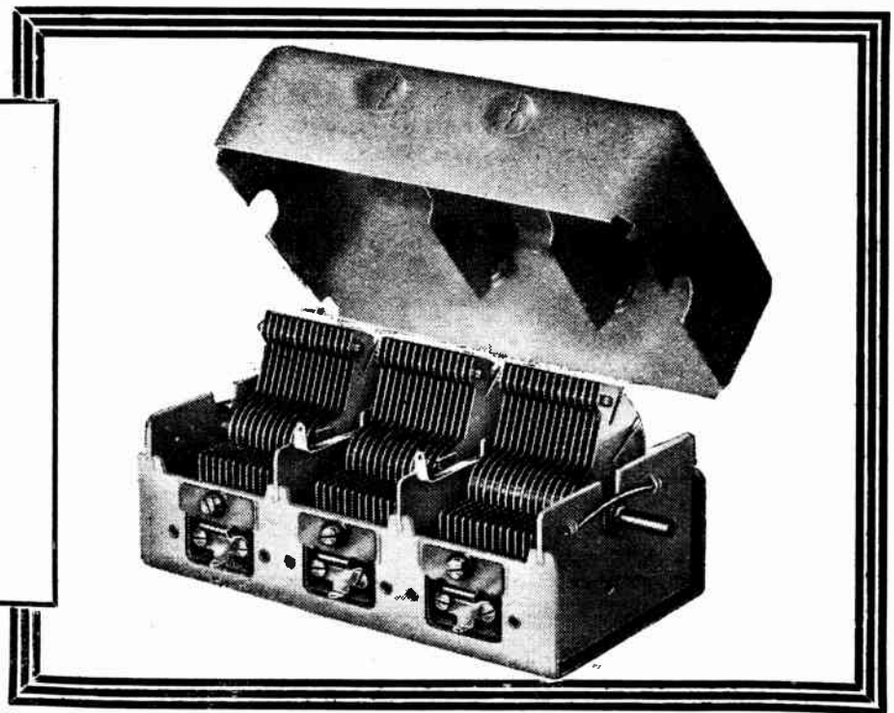

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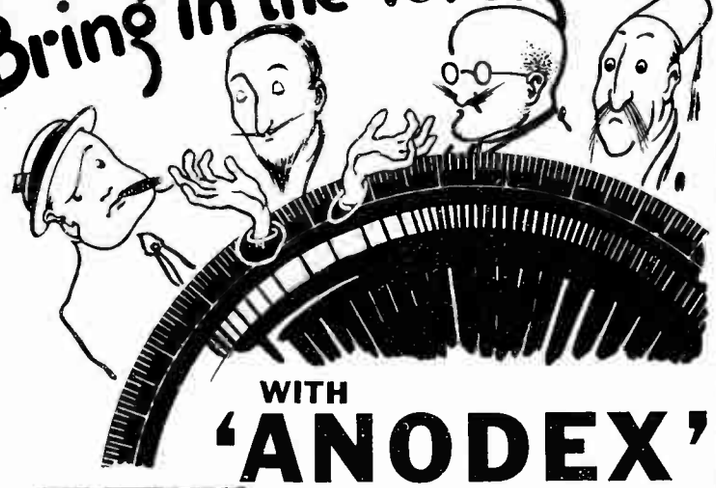

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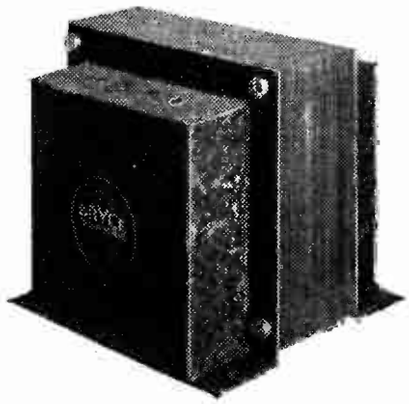

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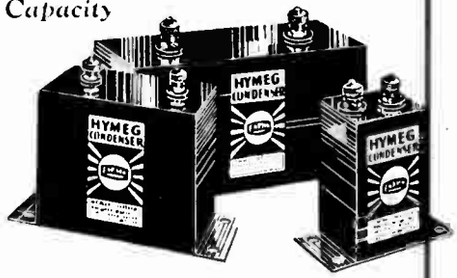

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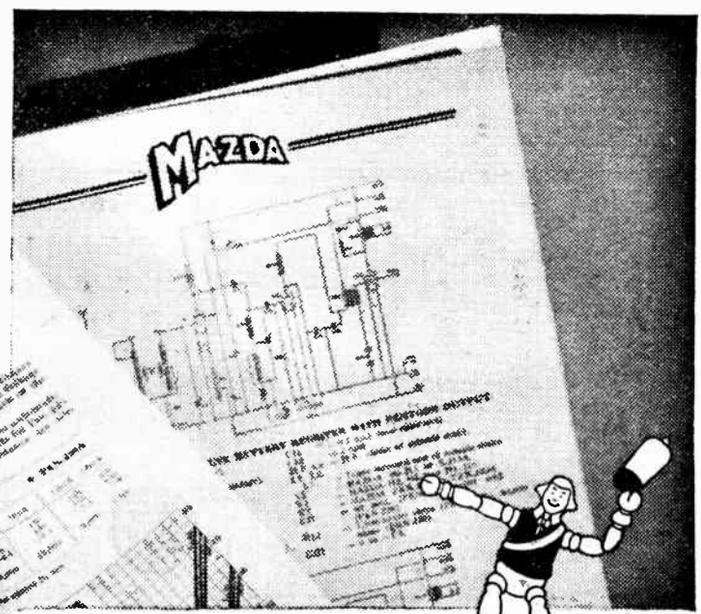

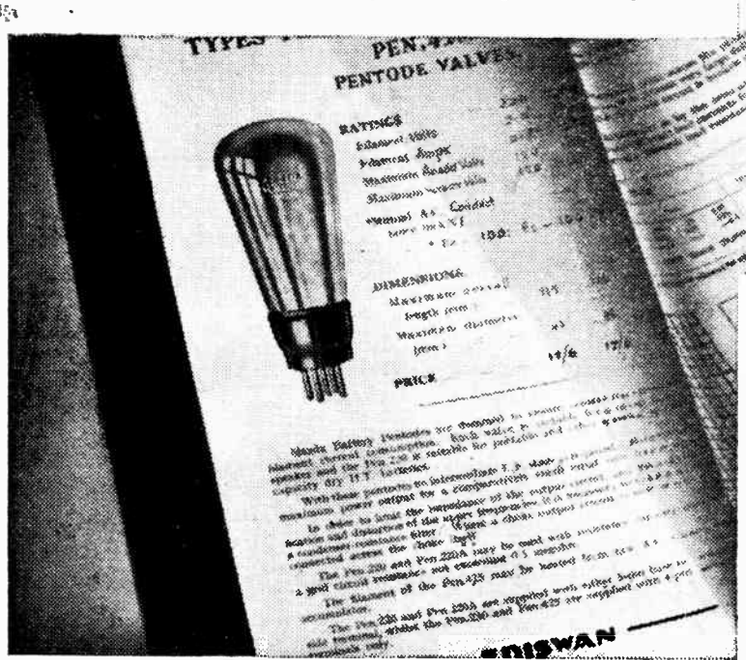

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LIST OF CONTENTS

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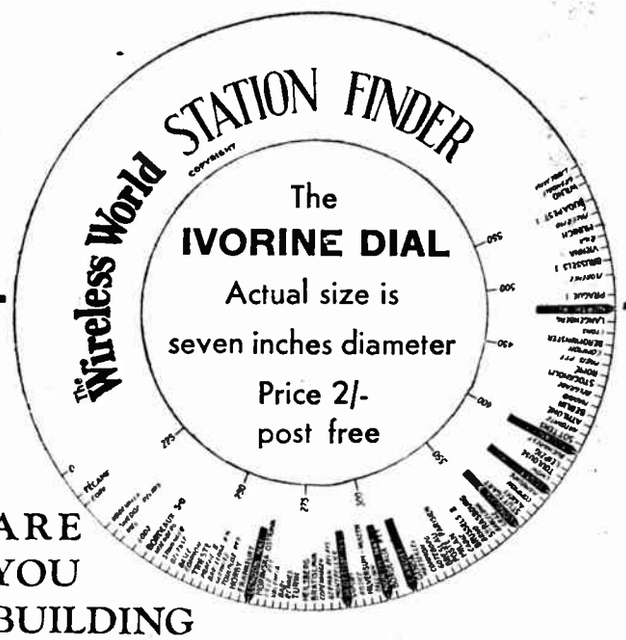

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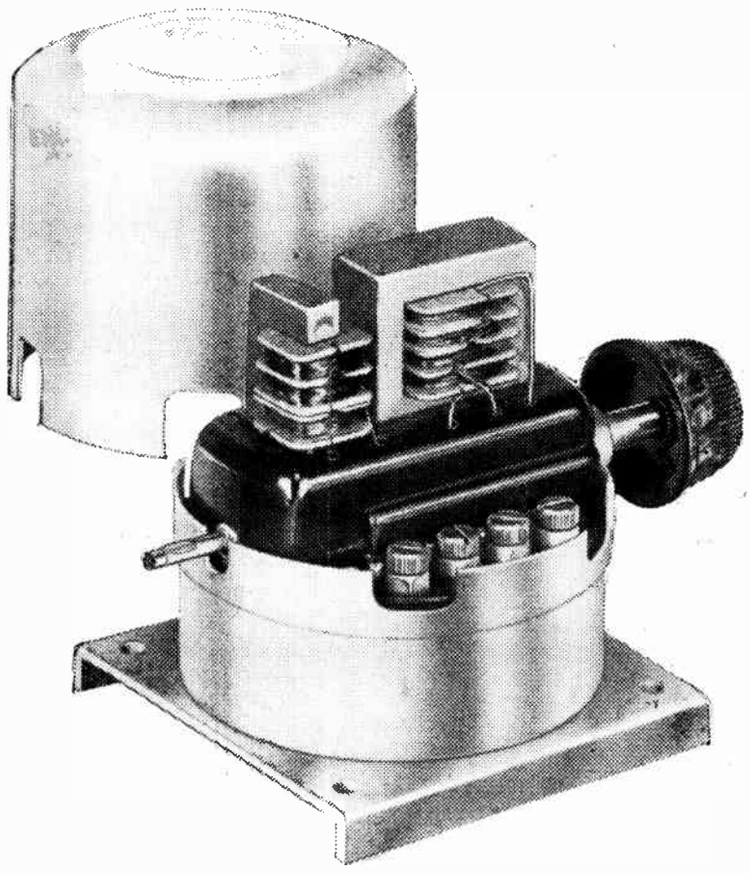

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22nd Year of Publication

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As many of the circuits and apparatus described in these pages are covered by patents, readers are advised, before making use of them, to satisfy themselves that they would not be infringing patents.

CONTENTS

	Page
PROGRAMMES FROM ABROAD, pp. I—XXIV	
Editorial Comment	*163*
Economy Smoothing	*164*
Practical Hints and Tips	*166*
Broadcast Brevities	*167*
News of the Week	*168*
The Ferrocart III	*169*
The Westector	*173*
Letters to the Editor	*174*
Laboratory Tests	*176*
B.S.R. Ampligram	*177*
Pye G/B Receiver	*178*
Readers' Problems	*180*

EDITORIAL COMMENT

A Vote of Confidence

Leave Well—and the B.B.C.—Alone

THE debate in the House of Commons last week on the present conduct and constitution of the B.B.C., which was heralded in some quarters as likely to develop into an earthquake which would shake the foundations of the Corporation, fizzled out instead like the proverbial damp squib, and has effectively postponed any possibility of tampering with B.B.C. affairs for some time to come.

Whilst we have ourselves often been ready to criticise little points connected with the activities of the B.B.C., yet we cannot raise any enthusiasm to support the views of those who disapprove of the way in which the B.B.C. strives to hold the balance and deal fairly with all parties and all sections of opinion at the microphone. We have nothing but admiration for the way in which this particular task has been handled by the Corporation.

If there is a criticism to make it should surely be that the B.B.C. is over sympathetic and considerate towards the multitude of spokesmen of minority opinions. It might perhaps be considered advisable that there should be more control exercised by the B.B.C. to make it less easy for the microphone to become available to minorities often so small that their members qualify to be described as "cranks." This consideration is, no doubt, constantly present in the minds of those who control the B.B.C., and possibly one result of last week's debate will be to encourage more autocratic weeding out of programme matter of doubtful value. The vote which followed the debate was nothing short of a tribute to the ability of those who at present guide the selection of broadcast matter in this country.

Every discussion arising out of the question of the autocratic powers which the B.B.C. enjoys, serves to emphasise the enormous responsibility resting upon the shoulders of those upon whom devolves the task of finding successors, as occasion arises, to replace those exercising authority at Broadcasting House. So long as we can have confidence that, as time goes on, control will pass in succession to persons of equal discretion and competence we have little cause for anxiety, but we hesitate to think what might be the effect of allowing these autocratic powers to pass into the hands of persons less fitted to entrust with so great a responsibility.

The Ferrocart III

Outstanding Selectivity

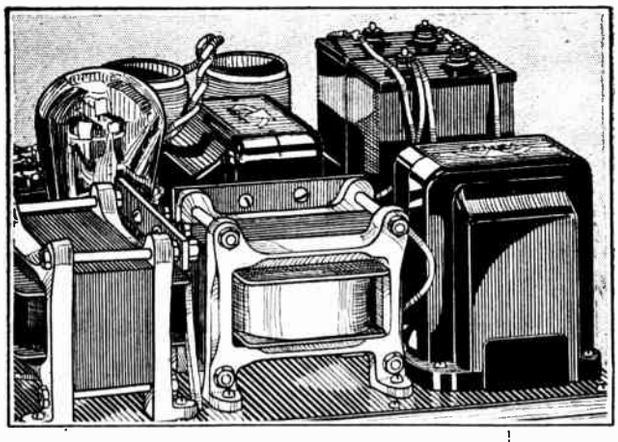
AS we announced last week, we are including in this issue a design for the construction of a three-valve receiver embodying the new Ferrocart coils which have created so much interest, first on account of the complete departure in design from coils of orthodox type, and secondly because of their very high efficiency.

In the receiver described in this issue the selectivity obtainable with a single H.F. stage is phenomenal. We chose for our first practical receiver a single stage H.F. design because this demonstrates more effectively than a multiple H.F. set the outstanding advantages to be derived from coils of this type. Whilst a feature which first strikes the eye is the minute size of the coils, this is probably the least important of the properties, for it is the switching and wiring considerations which control the eventual size of the coil unit.

Economy Smoothing

Hum-free Reception with Minimum Equipment

By M. G. SCROGGIE, B.Sc., A.M.I.E.E.



Showing the smoothing equipment required in an ambitious mains receiver

IT is comparatively easy to obtain ripple-free current from the mains supply if chokes and condensers are used regardless of cost. But to effect the same result with the very minimum of equipment requires a knowledge of those factors which contribute towards background noise and hum amplification. The author points out where economy of smoothing components can be safely made and concludes by explaining the virtues of push-pull.

IN designing the smoothing equipment for a mains-driven receiver, some people use brute-force and other people use brains. In the first method one obtains the most capacious condensers and the most massive chokes, regardless of expense, and connects them between the raw output from the rectifier and the receiver proper, and thus attempts to smooth out the ripple to such an extent that it is incapable of causing hum. The object is to make the whole supply of current to the valves practically as unvarying as that obtained from batteries.

The second method aims at putting in the smoothing components just where they are required and omitting them elsewhere.

Apart from the waste of money, the mere adding of choke to choke and condenser to condenser is by no means certain to guarantee freedom from hum. This is particularly true of D.C. working. Not only is the cost of amateur receivers sometimes unnecessarily high, but those produced by manufacturers are not always as economically arranged as they might be. For example, it is sheer wastefulness to pass the current to all the valves through the same smoothing circuit, except, perhaps, in the very simplest type of set.

A Reservoir Analogy

The commonest class of receiver at the present time is the three-valve combination—screen-grid high-frequency stage, detector, and pentode. To illustrate the various ways in which smoothing can be carried out, such a receiver will be assumed, and Fig. 1 shows a skeleton circuit of one.

The irrelevant details are omitted in order to emphasise the parts that are being considered. Thus the intervalve couplings are merely suggested by a non-committal oblong which may contain a tuning coil, transformer, resistor, loud speaker, etc., according to fancy. Grid bias is left out of account, and may be supposed to be looked after by the usual automatic bias resistors, one for each valve requiring it. A valve rectifier is indicated, but the arguments apply equally to metal rectifiers, or to no rectifier at all in the case of D.C. supplies; but while the principles applicable to A.C. operation include D.C. to some extent, the latter is rather special in some ways and will be considered later.

What we have to do, then, is to take a raw output from a rectifier, consisting of separate pulses of current, and smooth it so that when fed to the three anodes, one screen grid, and one pentode grid, the residual ripple is not enough to give rise to hum from the loud speaker. The simplest system is that shown (Fig. 1) in which C1 is a condenser which acts as a reservoir for the irregular gushes from the rectifier, just as a municipal reservoir enables a uniform supply of water to be delivered to the inhabitants, regardless of vagaries of rainfall.

A condenser alone would not be enough unless it had an impracticably enormous capacity, so there is inevitably a certain amount of ripple voltage across C1. To prevent this from causing a corresponding ripple in the current supply to the valves, the iron-core choke L is interposed, because it acts as a high impedance to such ripple current. And what does get through L finds an easy by-pass *via* the second condenser C2, so the proportion reaching the valves is very minute.

Actually C2 is the more effective condenser in minimising hum; C1 is valuable mainly in improving the efficiency of the rectifier and permitting it to deliver its full output.

Amplified Hum

However effective these smoothing components may be, there is always *some* remaining ripple. According to the arrangement of Fig. 1 the current supplied to all the valves carries an equal proportion of ripple, let us say 1 per cent. of the steady feed current. Such a small amount in the supply to the output valve is incapable of creating a bad hum in the speaker, because the musical or vocal ripple corresponding to the broadcast received is very much greater: perhaps 50 per cent. But the supply to the detector valve also has 1 per cent. hum ripple which reaches the grid of the power valve *via* the intervalve coupling, and is thus amplified along with the more desirable sound currents, so that it may be 20 per cent. by the time it reaches the power valve; a much less satisfactory result. There is, further, the feed to the H.F. valve, and if the coupling to the detector is by way of a condenser, a fair proportion reaches the detector grid and is amplified by that valve also. The hum may thus be actually louder than the proper programme. If the coupling is by H.F. transformer very little is passed on to the detector directly, as such a device is very

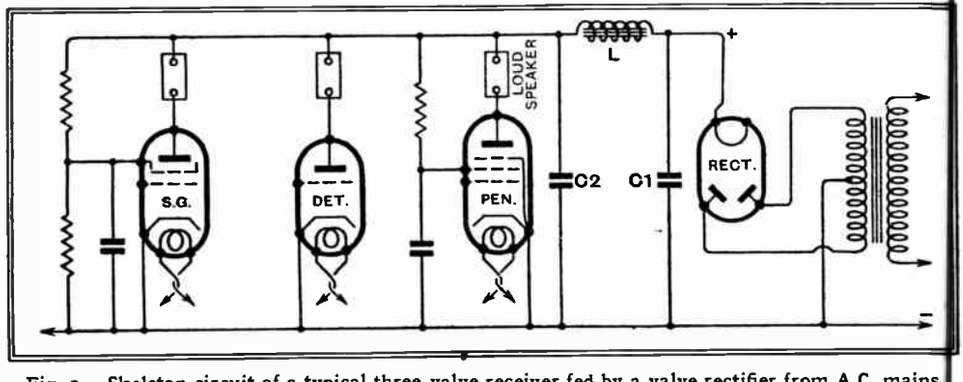


Fig. 1.—Skeleton circuit of a typical three-valve receiver fed by a valve rectifier from A.C. mains.

Economy Smoothing—

ineffective at the low frequency of the hum; but when the carrier wave of a station is tuned in, the hum ripple varies the H.F. amplification and thus modulates the carrier wave. In this way we get the effect of a hum which is only present when a transmission is being received. This variety is usually called modulation hum.

It is clear, then, that the filter C1, L, and C2 must be effective in reducing the ripple to such an extent that it is inoffensive even when amplified.

In former days the cost of such a simple filter for a large set would have been out of all reason, so it was customary to use two chokes and three condensers (Fig. 2) in order to obtain smoothing in easy stages. Two moderately large chokes are cheaper than a single fantastically large one. But now the loud speaker field winding, which is equivalent to a very effective choke, is usually available free of charge; while electrolytic condensers

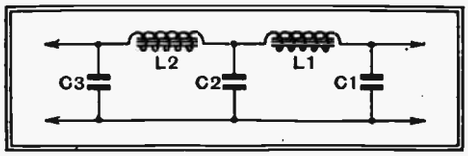


Fig. 2.—To avoid using a very large single choke, two chokes are often used to obtain smoothing in easy stages.

provide a large capacity cheaply. Even so, it is difficult to get enough smoothing from the Fig. 1 filter.

But a receiver of the sort indicated usually—one may say invariably—has decoupling devices in the earlier stages, and these act to some extent as hum filters. In fact, the valves which most need decoupling are just those that most need hum filtering. The reason is the same in both cases—the large subsequent amplification.

Proportional Smoothing

This suggests that we are making a huge mistake in trying to smooth all the current to suit the earlier stages, because the bulk of it goes to the output stage, for which much coarser fodder is good enough. So let us use a filter which is just enough for the last valve, and then pass the relatively small amount of current required for the other valves through a second filter specially designed for it. This may appear strange economy, to add some extras; but let us see. With 4 mfd. condensers, the Fig. 1 filter may easily require a 200 henry choke to kill hum sufficiently. A typical 3-valve receiver takes a total of 40 milliamps. Enquiry as to the price of a choke which is 200 H. at 40 mA. is likely to make one very thoughtful. But a 20 H. choke is probably enough for the last valve only, and the remaining current, say 5 mA., is taken through a 200 H. choke for the benefit of the other valves (Fig. 3). A 200 H. choke to carry 5 mA. is about the same size as the 20 H. for 40 mA.

If L1 is a loud speaker field winding, which is likely to have an inductance of more than 20 H, a still smaller choke will do for L2. But the relatively large ripple voltage developed across the field winding may induce some hum directly into the loud speaker moving coil, so manufacturers usually provide a hum-bucking coil.

Pentode *versus* Triode

The smoothing components now boil down to condensers of reasonable size (C3 at least is low voltage also) and one very diminutive choke. Even if the speaker field is not available, very complete smoothing is possible with two small chokes.

So far, no specific mention has been made of the auxiliary grid of the pentode. The foregoing argument may be applied equally well to a triode. But an interesting point emerges in considering the case of the pentode. If the characteristic curves are consulted it will be seen that quite large variations of anode voltage have scarcely any effect on the amount of anode current. Therefore a ripple voltage superimposed on the supply to the anode has to be quite large to produce an audible effect. Therefore, also, the sketchiest sort of smoothing suffices for this avenue of current, which is by far the largest. The auxiliary grid is not so; its current must be very pure and good, and if the choke L1 is pared to the bone the voltage-dropping resistance R and condenser C (Fig. 3) may not be enough to augment the smoothing, and it will be preferable to draw its supply from the same source as the other valves.

The ordinary triode power valve is much more sensitive to ripple than the pentode, and must be provided for accordingly, but the smoothing situation is considerably altered if push-pull amplification is adopted. Push-pull is commonly supposed to be a method of obtaining a larger output, or less distortion. No doubt it does this to some extent, but there is surprisingly little difference if one valve is removed altogether. The real virtue of push-pull, though it seems to be hidden under a bushel, is that the ripple current

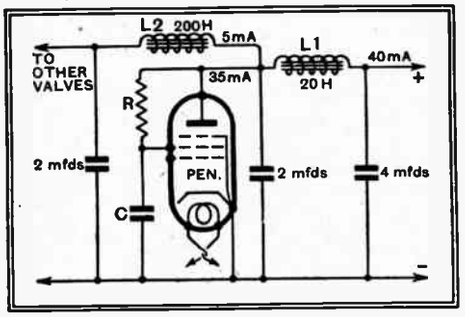


Fig. 3.—Proportional smoothing in which two chokes are used, suitably chosen for the current passing in the output and earlier stages respectively.

in the feed to the two anodes passes through the two halves of the output transformer primary in opposite directions, and cancels out. It is not possible to use totally raw current, for the amplifying properties of the valves would be somewhat upset and, moreover, the valves are not likely to be perfectly balanced. But it is possible to use feed current that is several times rougher than that which would be needed for an equally powerful single valve or parallel valve output. Sometimes it is even practicable to abolish the choke and trust to the standard 8 mfd. electrolytic condenser.

The output transformer also may be enormously cheapened because there is no

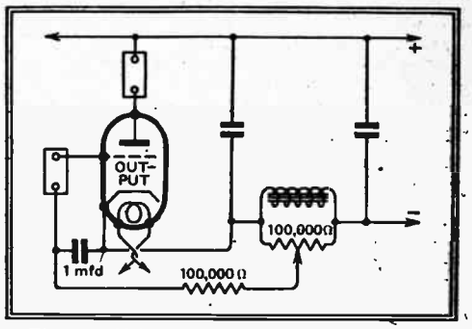


Fig. 4.—Using the volts developed across the speaker field for automatic bias.

resultant polarising effect to saturate its core. But that is outside our subject. The advantage of using a push-pull output for a really powerful amplifier taking a heavy current is immense, for the cost of adequate chokes and transformers otherwise becomes positively alarming. Of course, push-pull does not help the earlier stages; but we have seen that their relatively small consumption renders effective smoothing an easy matter.

D.C. Mains Smoothing

It seems to have become an established custom to connect a choke in the positive side. There appears to be no inherent advantage in this. In fact it may be a definite advantage to place it in the negative lead. For it inevitably drops some volts, particularly if it is a loud speaker field winding. The bias resistor for the power valve also drops volts. By the time all these volts have been lopped off, the power valve is not likely to be doing as well as it ought, so if the choke is in the negative side it may be used simultaneously as a bias resistor. It would be rather a stroke of luck if it were just right for the purpose. Generally it has to be augmented by some resistance added in series, or reduced by tapping. In either case a very imperfectly smoothed bias voltage results, which requires a little subsidiary filter to put it in order (Fig. 4).

Even though smoothing is everywhere adequate it does not necessarily mean freedom from hum. There are other causes of hum which must be eliminated.

In the case of D.C. the actual smoothing required is quite small. For instead of 100 per cent. ripple as in the case of a rectifier output, it is already fairly smooth when supplied by the authorities. But the ripple that is present is most obstinate. It is high pitched in tone and the ear can detect a far smaller amount in the loud speaker output. For the same reason it finds its way into forbidden territory by capacity paths.

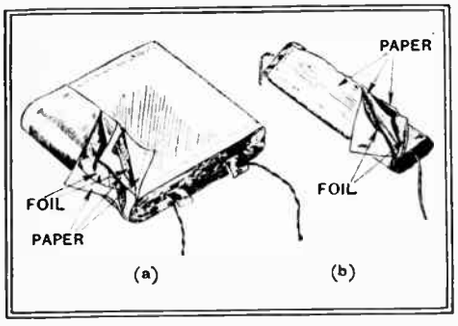
The larger the smoothing choke, the larger the stray capacity is likely to be, so that an endeavour to increase the filtering may be rewarded by more hum.

Practical HINTS AND TIPS

AIDS TO BETTER RECEPTION

A SMALL point with regard to paper condensers of high capacity may be responsible for uncertainty when a stock of existing components is to be used in building a new receiver. The non-inductive condenser has only been manufactured in large quantities during the last few years; condensers of earlier vintage will probably be inductive, and, unless they can be guaranteed as free from this property, there may be a natural hesitation to use them, even though they may be rated to withstand the voltages existing in the receiver.

Condensers: Inductive and Non-inductive



Inductive and non-inductive condensers compared. In the latter (sketch (b)) contact is established along the whole length of each metal foil, and not merely at one end.

These doubts may be set at rest by saying that there is very little risk of trouble through using inductive condensers in any position except where H.F. currents are to be dealt with. Accordingly, old condensers may be employed in L.F. circuits for by-pass and decoupling purposes, and also for smoothing, but they should not be inserted in the anode, grid, or screening grid circuits of the H.F. amplifier.

With regard to the detector anode circuit, where both H.F. and L.F. currents are handled, the position is not quite so clearly defined, but as a general rule the use of inductive condensers is not likely to do serious harm. Any paper condenser of high capacity will almost invariably be on the "dead" side of any H.F. filter that may be included in the circuit.

The accompanying sketch will help to make clear the essential difference between inductive and non-inductive condensers. The first are usually wound with two continuous strips of paper-interleaved foil, electrical connections being made only to one end of each strip. Charging currents flow through the convolutions of the winding, and it is not hard to see why the condenser has some of the properties of a tuning coil. A non-inductive condenser might be built up with a series of flat plates interleaved by paper insulation, but the more common course is to wind the two foils in such a way that their edges project so that contact may be made with them at a number of points, either by soldered or clamped joints. There are other, and rather more subtle, methods of ensuring an absence of inductive properties, but the simple and obvious method described is widely used.

IT is risky to hazard an opinion on the capabilities of a short-wave set after, say, a mere half an hour's experience with it. Short waves are notoriously uncertain, and conditions for their reception may vary from day to day or from hour to hour. Directional transmission has partly, but not entirely, overcome this element of uncertainty—as witness the Empire Service.

Improves with Acquaintance

When conditions are good a most unpromising receiver may afford wonderful results over enormous ranges, while the best of sets in unfavourable circumstances may fail entirely to receive intelligible signals from any distant station.

Accordingly, a short-wave receiver should, strictly speaking, be neither condemned nor praised except as the result of a direct comparison with other sets. The second-best alternative to this is a prolonged series of tests spread over a period of time.

The human element also comes into the picture. Those whose experience has been confined to normal broadcast reception are apt to feel very much at sea when first handling a short-wave set; until this feeling wears off it is unlikely that the user will get the best possible results from his set.

THE clearances allowed in moving-coil loud speaker construction are usually very small, and so it is not surprising that the worst sometimes happens, and the moving coil makes intermittent contact with the sides of the gap in which it works. This highly undesirable rubbing contact may take place at all positions, or it may only occur towards one end of the travel of the coil. In all cases the result is serious distortion, and, as a rule, a reduction in volume.

Centring the Moving Coil

A rubbing contact between the moving coil and the magnet is not so easy to diagnose as one might expect, and probably the simplest and most certain way of making sure that this trouble is present is to listen to the loud speaker when it is reproducing a sustained pure note of constant intensity, and preferably low periodicity. If the trouble in question is present a secondary frequency, superimposed on the applied tone, will be audible.

A supply of about 20 or 30 volts of A.C., periodicity 50 to 100 cycles, is suitable for the purpose of testing; it may not be obvious to users of A.C. sets that voltages of this order are usually available in their own receivers.

Most mains transformers have a primary winding tapped for various intermediate voltages between 200 and 250 volts, and in these tappings we have just what is needed. To make a test, the loud speaker output transformer may be disconnected from its usual position in the circuit and joined across the power-transformer tappings in the manner shown in Fig. 1. The position of the output-transformer connections depends on the power required to vibrate the loud speaker diaphragm at reasonable amplitudes for testing. Care must be taken not to apply too much voltage, and, most important of all, not to impose a short-circuit on the mains supply.

While tests are being carried out the leads originally connected to the output transformer primary may be joined together in order to maintain a sensibly constant load on the H.T. power supply system of the receiver, and thus to prevent damage to condensers, etc.

It is hardly to be generally recommended that the amateur should himself undertake the somewhat ticklish operation

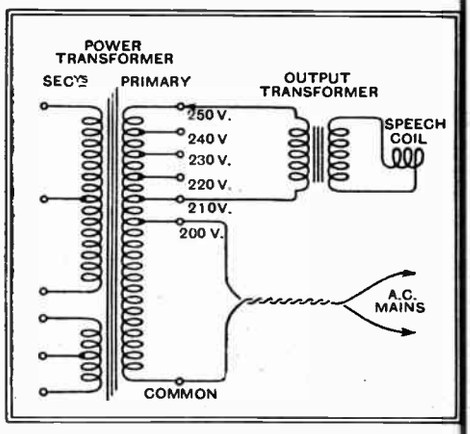


Fig. 1.—A.C. voltages of from 10 to 40 or 50 volts may be obtained, for test purposes, from the tapped primary of a mains transformer.

of re-centring the moving coil if the service department of the makers is available for doing it for him. Patience and a light touch is generally needed, and the work can best be done while the loud speaker diaphragm is being actuated by the stepped-down mains voltage. The fact that the rubbing contact has been removed is shown by the disappearance of the secondary audible frequency.

Broadcast Brevities

By Our Special Correspondent

B.B.C. and the "Ultra Shorts"

FROM being the topic of the hour, the ultra short wave tests at Broadcasting House have become a prosaic affair of daily routine. Certain of the engineers have rigged up ultra short wave adaptors at their houses, listening in daily to ultra short relays of the National or Regional programmes. One man uses his "ultra short" set as far away as Purley, fifteen miles distant.

Day Unto Day

From time to time the quality of reception is compared with that from the medium-wave transmitters, and an entry is made in a log book. So the tests go on. In a few years' time, if all goes well, a senior engineer may inspect the logs, discover that ultra short-wave broadcasting is a practical proposition, and write a paper for the I.E.E.

No harm will be done because, by that time, the Regional scheme will be decently obsolete.

A Subject for "Free Grid"

"FREE GRID," whose absence abroad, by the way, has aroused a surprising amount of interest in unexpected quarters, would be pained to hear that the Blattnerphone is being used this week by the B.B.C. for the Leicestershire County celebrations without the fact being indicated to listeners. And I have private information to the effect that this form of recording, unheralded and unsung, has been used on similar occasions in the past.

The explosions in a Leicestershire quarry which will be broadcast to-morrow (Saturday) were recorded several days ago.

Not What it Seems

And those factory noises. The more intelligent of listeners must have guessed, of course, that no factory staff would set to work at full pelt at 9 p.m. simply to provide "noises" for a B.B.C. programme. These sounds of work, always so soothing to people who are not working, are Blattnerphoned during the day and broadcast at night.

Mugwumpery

THE Commons debate on broadcasting had the result which everyone in Broadcasting House predicted, viz., a vindication of the *status quo*, no additional Parliamentary control being considered necessary in the public interest. The only highlight in the debate was the display of verbal pyrotechnics by Mr. Winston Churchill, whose allusion to "pontifical anonymous mugwumpery" seemed, to at least one listener, to be more disrespectful than untruthful.

Ambiguous

A mugwump, according to the Pocket Oxford Dictionary, is a "person affecting superiority to party politics." The term is of North-American-Indian origin and stands for "great chief."

On second thoughts I feel that Mr. Churchill intended a compliment.

Remarkable Coincidence

HARMAN GRISEWOOD is to make his last appearance in radio drama next month in the revival of "Chopin," by Wilfred Rooke-Ley, which is to be broadcast Nationally on March 31st, and from the Regionals on April 1st. He will then join the Broadcasting House announcing staff which, by a remarkable coincidence, already includes Frederick Grisewood—no relation!

I am told that the chances of another Grisewood (unrelated to either) joining the announcing staff within a twelvemonth are 1,743,101 to 1. Try working it out with a pack of cards and the joker.

Announcing to the Empire

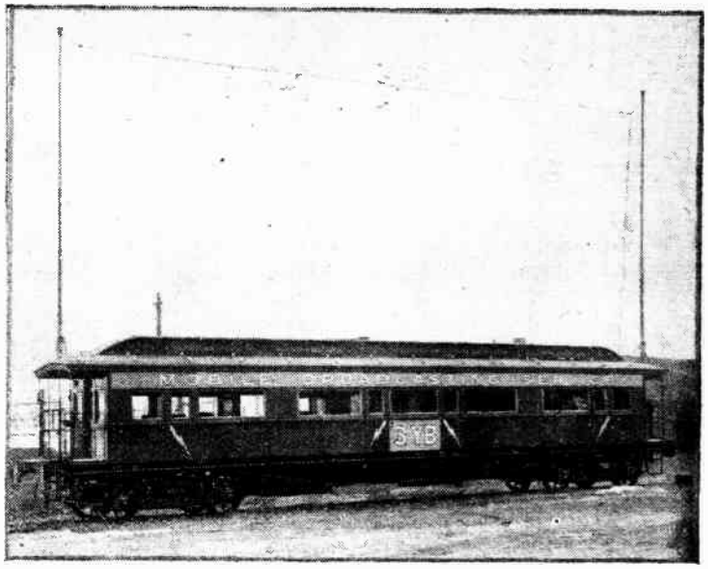
De Groot, the young London announcer, is now devoting his time to Empire announcements only, and, in the words of the Cockney, "the job ain't no synagogue," for the Empire station transmits for twelve-and-a-half hours daily.

Time-Table Changes

The Empire transmission times are being changed slightly as from April 2nd next in such a way that the Third and Fourth Zones will be virtually merged.

At present the African Zone (III) receives its own programmes from 6 to 8 p.m. G.M.T., and the West African Zone (IV) from 8.30 to 10.30 p.m. G.M.T. Under the new arrangement the programme for both Zones will be a continuous affair from 6 to 10.30 p.m.

The Indian Zone (II) period will also be extended, transmission being continuous from 1.30 to 5.30 p.m.



HERE TO-DAY AND GONE TO-MORROW. This travelling broadcasting station roams Victoria, Australia, distributing sponsored programmes over a fairly wide service area.

Sticking to G.M.T.

Although British Summer Time begins on April 9th, the B.B.C. intends to use Greenwich time as the basis for all Empire broadcasting time-tables.

Film Talks by Cecil Lewis

CECIL LEWIS—"Uncle Caractacus" of former days and Director of Programmes—will shortly return to the microphone to give a series of talks on "How a Film is Made."

Since he left the B.B.C. five years ago, Cecil Lewis has done much scenario writing and production for British International Pictures at Elstree, and I imagine that he could "talk shop" at the microphone in a highly interesting manner.

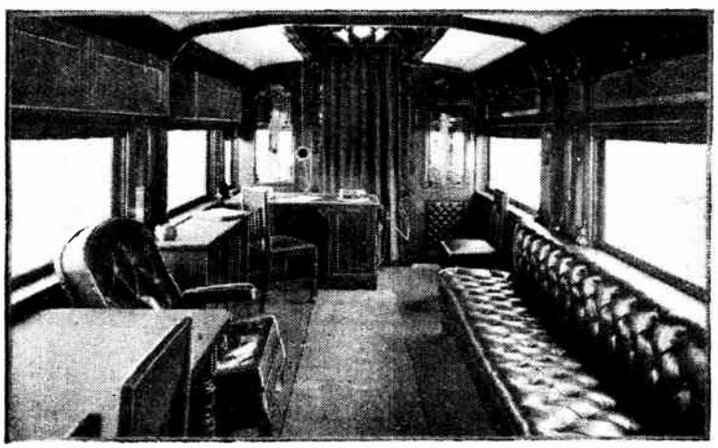
The Boat Race Relay

J. D. M. SNAGGE, who made such a success of the Boat Race Relay last year, will perform the same task on the afternoon of April 1st, when he will follow the crews in the launch "Magician." As in past years, the short-wave transmission from the launch will be picked up on the roof of Harrod's Depository, near Hammersmith Bridge. The race is expected to start at 3.50 p.m., in which case the commentary will begin a quarter of an hour earlier.

The Grand National

THE Grand National Relay is always a favourite. This year the race takes place on March 24th. The commentators will be Mr. R. C. Lyle, who will give his description from Topham's private stand, and Mr. W. Hobbis, who will be occupying a strategical position at the Canal Turn. Mr. Snagge, of Boat Race fame, will describe the scene at the start.

What more could one want, except to back a winner?



A STUDIO ON RAILS. A portion of the Victorian Railways coach is utilised as a studio, seen above, the remainder housing the transmitter and power generators.

NEWS of the WEEK

Wireless in Church

A WIRELESS set in every church within the next three years is the forecast of the vicar of St. James's, Carlisle, the Rev. F. W. Hopkins, whose church is used for the reception of broadcast services.

Finlandia

FINLAND stations are to be increased in power. We understand that the Viipuri station is to be raised from 10 to 40 kilowatts, while Oulu is to increase its power to 10 kilowatts.

Listening Boom in Irish Free State ?

A BIG jump in the number of wireless licences in the Irish Free State is expected following the opening of the Athlone high-power station.

The increase will not come too soon. At the end of last year only 31,094 licences had been issued, which is equivalent to a licence for one person in a hundred.

Toulouse Gets Impatient

DESPITE appeals to the Post Office authorities, Radio Toulouse, the new 60-kilowatt station at Saint Agnan, is not yet licensed for transmission. The touring organisations of the Pyrenees and the Basque Coast have now demanded that the station should be allowed to function in the same manner as other private transmitters such as Radio Paris and Poste Parisien, "which have already been authorised to increase their power."

Did You Hear the Nouba ?

WHILE we wait impatiently for news of the postponed electrical music concert from the German stations, it is consoling to know that Radio Algiers broadcast an entire "Nouba" on February 23rd. A correspondent states that the broadcast included "the overture, its Messeders, its betaihis, its derdjs, its nessrafs, its final or meklass and its partial preludes or kersis." He adds that a Nouba, "though it suggests some sort of a sweet thing, is a common or garden symphonic suite in A minor."

Prize for Radio Cabinet Design

A TEN-GUINEA Wireless Set is offered by the Six-Sixty Radio Company for a design for a radio cabinet in connection with the Royal Society of Arts Competition of Industrial Designs, 1933.

Messrs. Ferranti, Ltd., offer a first prize of £20 and a second prize of £10 for designs for window showcards advertising synchronous Electric Clocks.

The descriptive booklet concerning the competitions can be obtained from the Royal Society of Arts, John Street, Adelphi, W.C.2, price 4d., post free.

A Radio Church

AUCKLAND, New Zealand, has a "Radio Parson," the Rev. C. G. Scrimgeour, who has relinquished control of a city mission in favour of a "radio church" operated by station 1ZR.

Current Events in Brief Review

Fewer Sponsored Programmes from Paris ?

FROM a reliable source we learn that *Radio Paris* will be definitely taken over by the French postal authorities on April 1st, a step which it is expected will mean a diminution in the number of sponsored programmes from the station. Originally the P.T.T. intended building an official station to replace the Eiffel Tower for broadcasting purposes, but the purchase of *Radio Paris* has been decided upon for economic reasons.

Presidential Broadcasts To-morrow

PRACTICALLY every broadcast wavelength in America will be occupied to-morrow (Saturday) with verbal and musical details of President Roosevelt's inauguration at Washington. The broadcast is to be the most elaborate in history.

The Presidential programme will run from 2.30 p.m. to 9.30 p.m. G.M.T., and the parade of welcome in Washington will be described from speakers' booths, from "roving stations" strapped on the backs of peripatetic reporters or carried in cars, from aeroplanes and airships, and from (for the inaugural address) the stand at the east entrance to the Capitol. Radio cars will follow the new President in the procession to the White House, and listeners will hear the noise of the gathered multitudes.

Among the American short-wave stations which are expected to broadcast the event are W3XAL (49.18 metres), W8SK (48.86 metres), W2XAF (31.48 metres), and W8XK (25.27 metres).

Opera from Greece

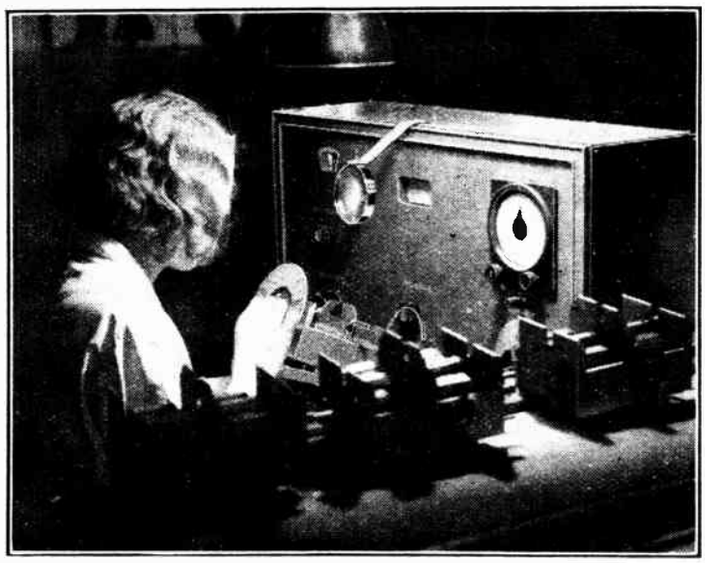
IF "burning Sappho lived and sung" in our times she would be eligible for the job of lady announcer in Greece, for the first Hellenic transmissions are now being carried out in a businesslike manner by Radio Salonika on a wavelength of 265 metres and a power of 2 kilowatts. The station is run by the Salonika Association of Wireless Listeners, who recently arranged a vocal recital by Vitsou and Epitropaki, soprano and tenor, respectively, of the Hellenic Opera.

New R.M.A. Chairman

MR. W. WITT BURNHAM has been elected chairman of the Radio Manufacturers' Association in succession to Mr. Leslie McMichael. Mr. Burnham, who is now head of the radio activities of the Edison Swan Electric Co., was connected with the industry long before the advent of broadcasting. He was chairman of the National Association of Radio Manufacturers and Traders for three years before the present organisation came into existence.

German Political Broadcasting

THE German Government is taking rigorous measures to ensure that propaganda broadcasts in connection with the coming elections shall not be interfered with. Recently when Herr Hitler was giving a speech a line linking the hall with the Stuttgart broadcasting station was cut fifteen minutes before the end of the speech. Next morning, writes a correspondent, the Ministry of Posts in Berlin ordered that the officials responsible for the technical side of Stuttgart broadcasting should be immediately suspended from their duties until the matter had been investigated.



TESTING VARIABLE CONDENSERS. Before being passed for mounting in a receiver, condensers in the Lorenz factory, at Berlin, are tested in a small transmitter. The tester is here seen watching the dial readings through a magnifying glass.

Special Revolution Service

"A REGULAR service of alarming and disturbing news" was broadcast from a mystery station in Barcelona during the recent Communist troubles, writes a correspondent. Orders have been given to the Postal Administration to track the transmitter and bring its owners to justice.

Comfort for Cooks

THE French "Bulletin National du Commerce et de l'Industrie" contains a special notice assuring chefs and all engaged in the restaurant trade that their livelihood is not likely to suffer in the near future by the introduction of cooking by wireless.

The writer, under the signature "Le Maître d'Hôtel," refutes all rumours to the contrary.

H.F. in Food Preservation

ALTHOUGH experiments in the preservation of food by means of short electro-magnetic waves are not a novelty, it is interesting to learn that the Soviet Government has voted 60 millions of roubles to a competent organisation undertaking food sterilisation of cooking by wireless.

Professors Kasterine and Lacharov are stated to be in charge of the experiments at station MGSPS.

Canadian Listeners to Pay More ?

CANADIAN Government estimates for radio services during the 1933-34 fiscal year further set at rest apprehensions among Canadian broadcasters that the recently established Canadian Radio Commission will take over the ownership and operation of broadcasting stations under the nationalisation scheme voted by Parliament last year.

Though the estimates represent an increase of $562,975 over the appropriations for the current fiscal year, they include only $1,000,000 for broadcasting services, which is only a fraction of the amount that would be needed to take over Canadian stations from their present owners.

Proposals have been made to increase the listener licence fee of $2 to $3, $4 or $5.

Eavesdropping on the Police

POLICE "broadcasts," which provided a craze among American listeners on the short waves some months ago, may have a similar effect in this country judging from the experience of Brighton listeners during recent tests by the local police with their pocket wireless system. The transmissions are made from a station on the roof of the Town Hall, and, although a wavelength of 147 metres is used, listeners in the neighbourhood appear to have heard the tests at various points on their receiver dials.

"I heard the messages on 200 to 400 metres and 1,000 to 1,750 metres," declared one listener. Apparently no secrets are being given away by the Brighton police for the messages picked up by listeners merely ask patrolling officers to ring up headquarters on the next telephone!

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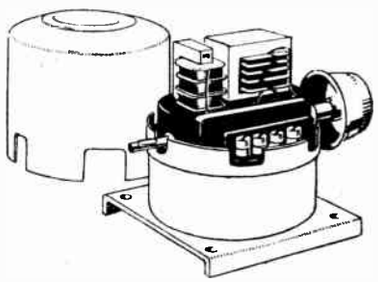

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● **LIST OF PARTS — IMPORTANT NOTICE**

"The Wireless World" Official List of Parts printed in this issue, shows item for item the contents of the PILOT AUTHOR KIT which comprises only those parts actually used by the Author himself. Builders of the Ferrocart III with a PILOT AUTHOR KIT are assured of a square deal. Readers desiring to purchase any items separately can order with confidence from the EDITORIAL LIST OF PARTS for delivery against CASH or C.O.D.—Orders over 10/- Carriage Paid, or C.O.D. Post Charges Paid. Components or Part Kits value over 50/- by EASIWAY if preferred.

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THEY were specially designed to satisfy every need of the critical technician. Carrying well over their stated load, my NEW OHMITES easily withstand mains 'surge' and are not liable to breakdown. Not wire wound, non-corrosive and non-inductive, they cannot create hum, and do not readily overheat. These are only a few reasons why my NEW OHMITES can be adopted with such confidence.

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Ohms	Milliamps	Ohms	Milliamps
100,000	3·5	10,000	12·
80,000	4·24	5,000	20·25
60,000	5·	4,000	24·
50,000	5·5	3,000	29·
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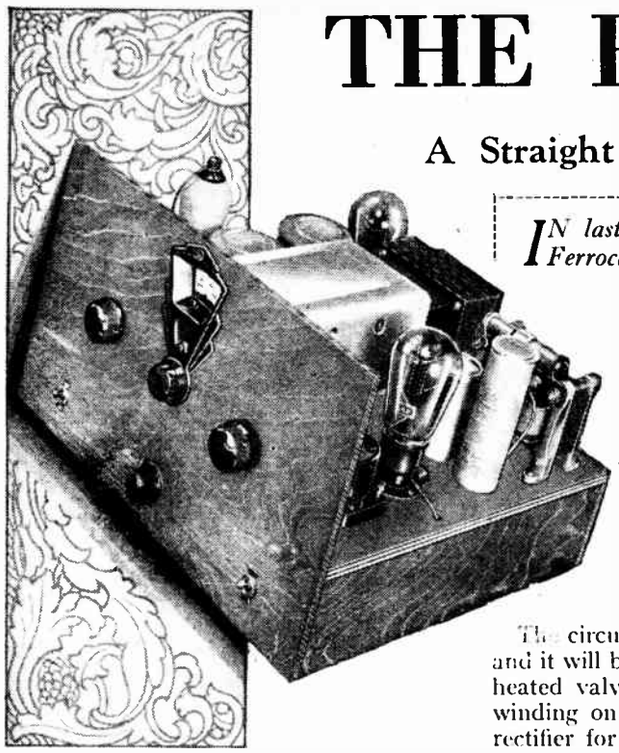
THE FERROCART III

A Straight A.C. Set of Outstanding Selectivity



IN last week's issue appeared the first description of the British version of Ferrocart coils. Practical tests showed that so high was the efficiency of these coils that it was possible to obtain from a simple straight set a degree of selectivity which bids fair to rival that of the superheterodyne. The Ferrocart III receiver, constructional details of which are presented in this article, gives an outstanding performance and is undoubtedly a great advance over other receivers with a similar number of valves and tuned circuits.

By W. T. COCKING

THE benefits to be derived from the use of the new high-efficiency iron-cored tuning coils were fully discussed in last week's issue of *The Wireless World*, and it is, therefore, unnecessary to enter into the theoretical side of the matter here. It will suffice to point out that the employment of Ferrocart coils leads to a normal performance so far as sensitivity and quality of reproduction are concerned, but permits the attainment of vastly improved selectivity. The small and inexpensive three-valve set, therefore, is once again rendered capable of meeting the exacting conditions imposed by the present congestion of the broadcast ether.

The circuit diagram is shown in Fig. 1, and it will be seen that the three indirectly heated valves are all run from the same winding on the mains transformer. The rectifier for the H.T. supply is a 442BU valve, and it is supplied with 350 volts A.C.; the 4 mfd. reservoir condenser C17 is of the electrolytic type. The D.C. potential across this condenser is reduced to the value required by the receiver valves, some 250 volts, by the passage of the total anode current through the smoothing choke Ch4. This component has a resistance of 2,500 ohms and a working inductance of 70 H., so that in conjunction with the 8 mfd. condenser C18 a very high degree of smoothing is obtained. Actually, of course, the requisite smoothing could have been provided by a lower resistance choke, and a smaller A.C. input to the rectifier would then have been permissible. The extra voltage, however, increases the cost to a very small extent, and it makes it readily possible to energise the field winding of a moving-coil speaker, should this be used. With such a speaker it is merely necessary to omit the choke Ch4, and to connect the 2,500 ohms field winding in its place. If hum is to be avoided with this arrangement, of course, the speaker must be fitted with humbucking.

Circuit Values

The screen of the output pentode, an MP-Pen, is fed directly from the 250 volts line, and the anode is also fed from the same point through a tapped pentode output choke Ch3, across which is connected the usual pentode compensator, comprising the 10,000 ohms resistance R14 and the 0.01 mfd. condenser C15. The speaker itself is fed through the 2 mfd. condenser C16, and in view of the step-down ratio normally employed, this allows of full bass reproduction to be obtained by virtue of resonance with the speaker.

The grid bias for the pentode is obtained by the voltage drop along the 300 ohms

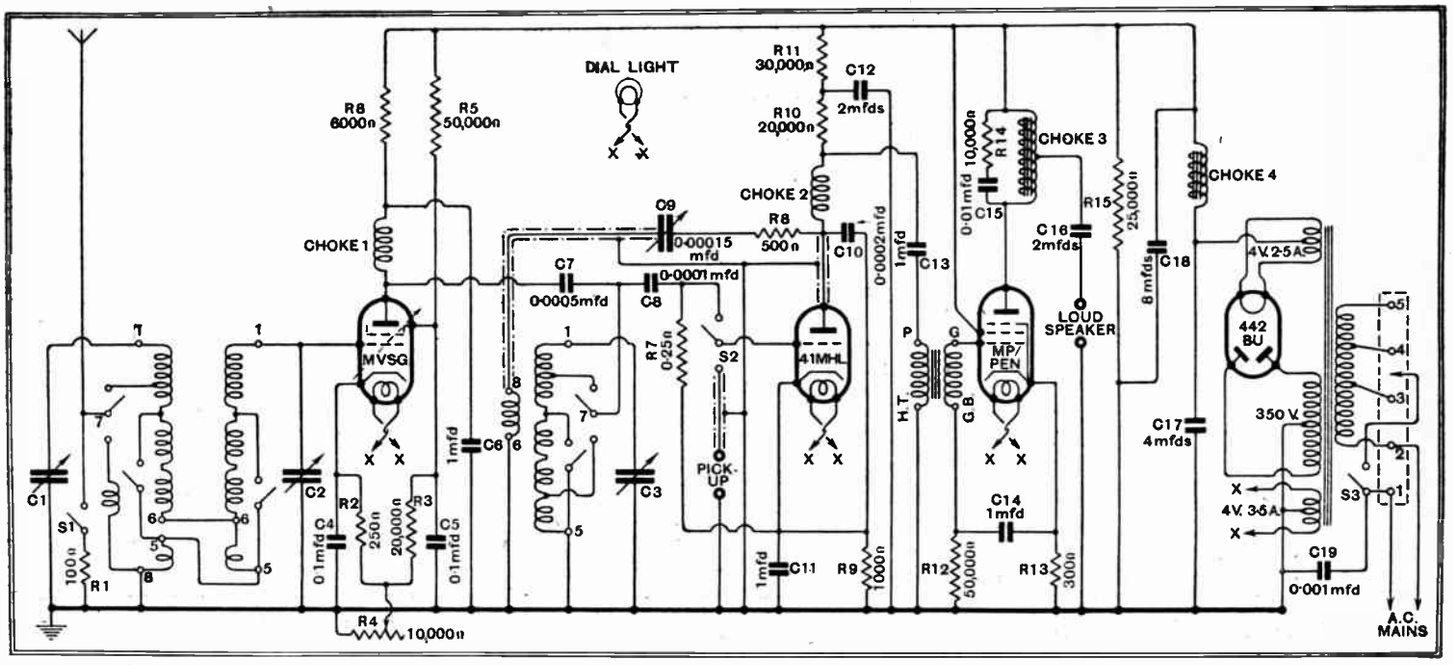
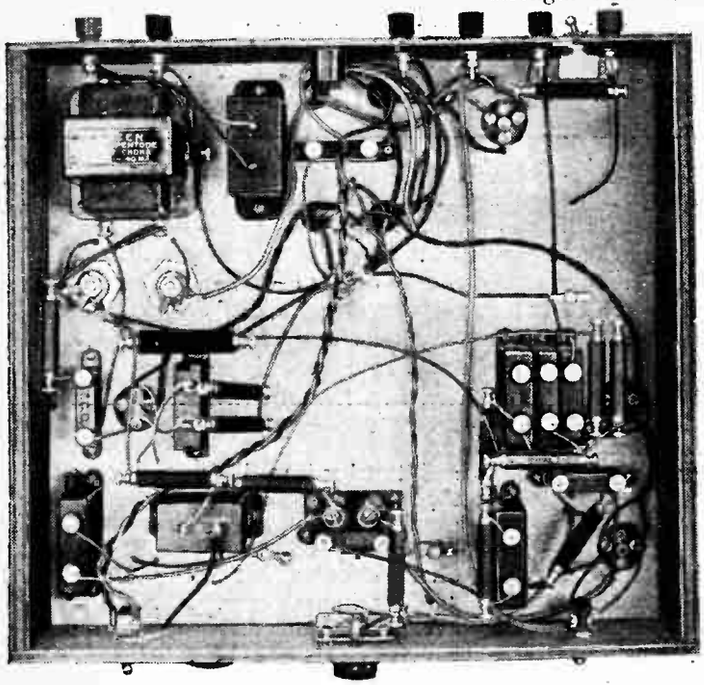


Fig. 1.—Complete circuit diagram of the Ferrocart III receiver. The overall response of the three tuned circuits is such as to give good quality of reproduction over the wavebands.

Ferrocart III—



View of the under baseboard where most of the decoupling components are mounted.

resistance R13 in the cathode circuit, and the grid circuit is decoupled by the 50,000 ohms resistance R12 and the 1 mfd. condenser C14. The L.F. intervalve coupling is by means of a resistance-capacity fed transformer, the resistance R10 in the detector anode circuit being given a value of 20,000 ohms and the coupling condenser C13 a capacity of 1 mfd. The detector anode circuit is decoupled by a 30,000 ohms resistance R11 and a 2 mfd. condenser C12. The H.F. choke Ch2 and the by-pass condenser C10, of 0.0002 mfd. capacity, serve to prevent the passage of H.F. currents into the purely L.F. circuits and also ensure the correct operation of reaction. A bias resistance R9 of 1,000 ohms, shunted by a 1 mfd. condenser C11, is provided in the detector cathode circuit to provide the necessary negative bias for gramophone reproduction, and the switch S2 in the grid circuit permits a change from radio to gramophone to be readily made.

Two Volume Control Ranges

The variable-mu H.F. valve is fed from a network of resistances designed to keep the anode and screen potentials substantially constant, irrespective of the actual bias voltage. The anode is fed through the 6,000 ohms resistance R6, with a 1 mfd. non-inductive by-pass condenser C6, while the screen is fed from the combination comprising R5, R3, and R4, with values of 50,000 ohms, 20,000 ohms, and 10,000 ohms respectively, the last being the volume control. The screen and cathode are both by-passed to earth by the 0.1 mfd. non-inductive condensers C5 and C4, and the fixed minimum value of bias for the H.F. valve is provided by the 250 ohms resistance R2.

The range of control afforded by the variable resistance is ample for all normal strength stations, but it fails when it is desired to reduce a nearby local station to a reasonable volume. To cover this important case, therefore, a local-distance switch S1 is fitted, whereby a fixed resistance R1 of 100 ohms can be thrown at will across the aerial and earth terminals, thus giving a fresh range of control.

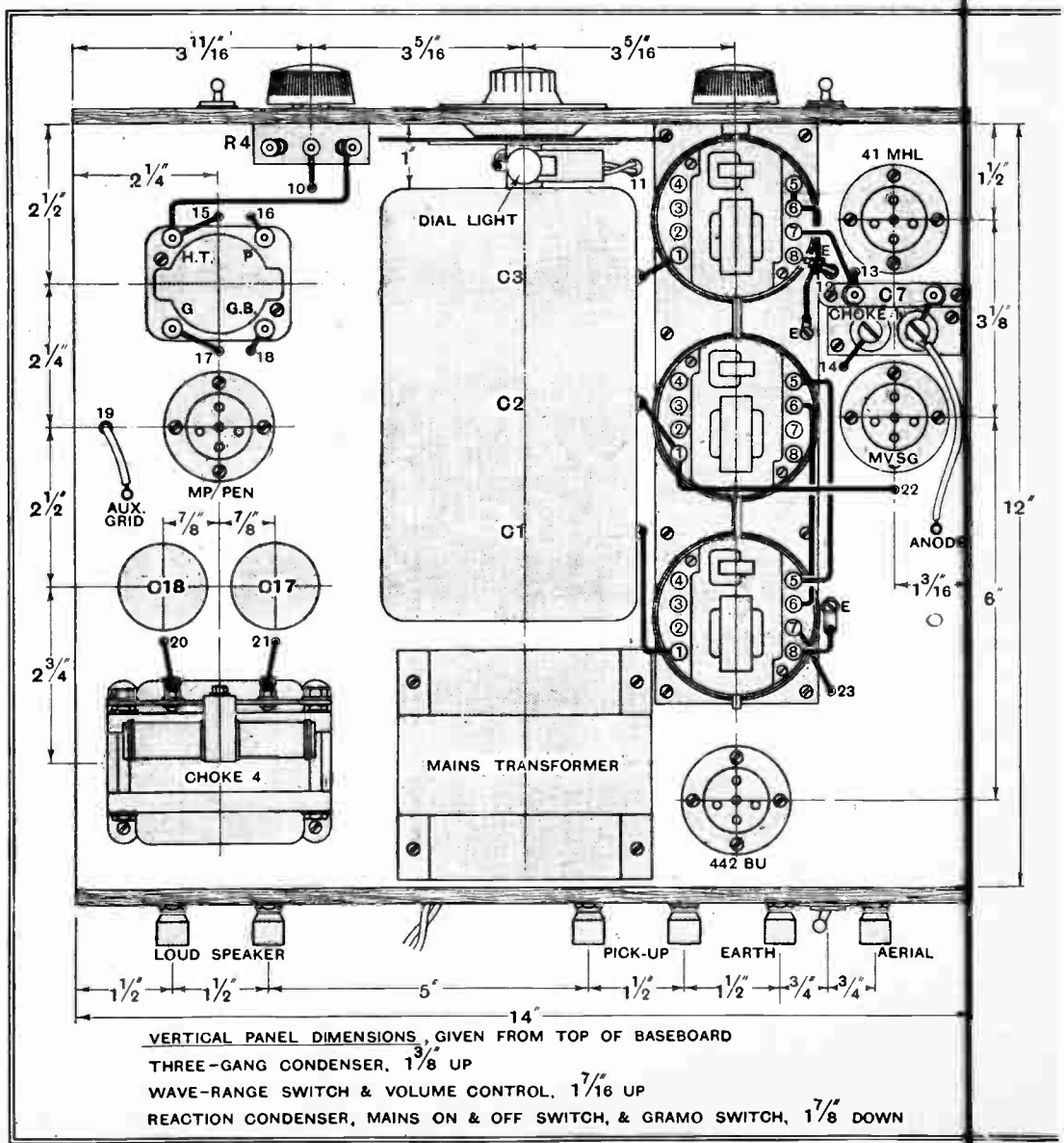
It is unnecessary here to enter into the design of the H.F. circuits, for this was dealt with in last week's article. It will be obvious that the input filter and the intervalve coupling are tuned by the three sections C1, C2, and C3, of the three-gang condenser, and this, of course, is of the straight type, with identical sections. Accurate matching is of the first importance, and the necessity for using a high-quality component cannot be too highly stressed. The H.F. chokes Ch1 and Ch2 have also an effect upon the ganging, and it is recommended that no deviation be made from the specification in respect of these by no means unimportant items.

Initial Adjustments

The layout adopted for the receiver is very straightforward, and no constructional difficulties should be met with. The aluminium covered baseboard is obtainable in chassis form with the large holes already drilled, and the metal covering is easily pierced with a pricker for the remaining wood screws. For those who prefer it, a stamped metal chassis is available as an alternative.

Although the actual component is of the differential type, the reaction condenser C9 is wired up as a straight condenser. One set of fixed plates, therefore, is left blank. The mains transformer is of the

THE LAYOUT OF PARTS ABOVE AND BELOW



VERTICAL PANEL DIMENSIONS, GIVEN FROM TOP OF BASEBOARD
THREE-GANG CONDENSER, 1 3/8" UP
WAVE-RANGE SWITCH & VOLUME CONTROL, 1 7/16" UP
REACTION CONDENSER, MAINS ON & OFF SWITCH, & GRAMO SWITCH, 1 7/8" DOWN

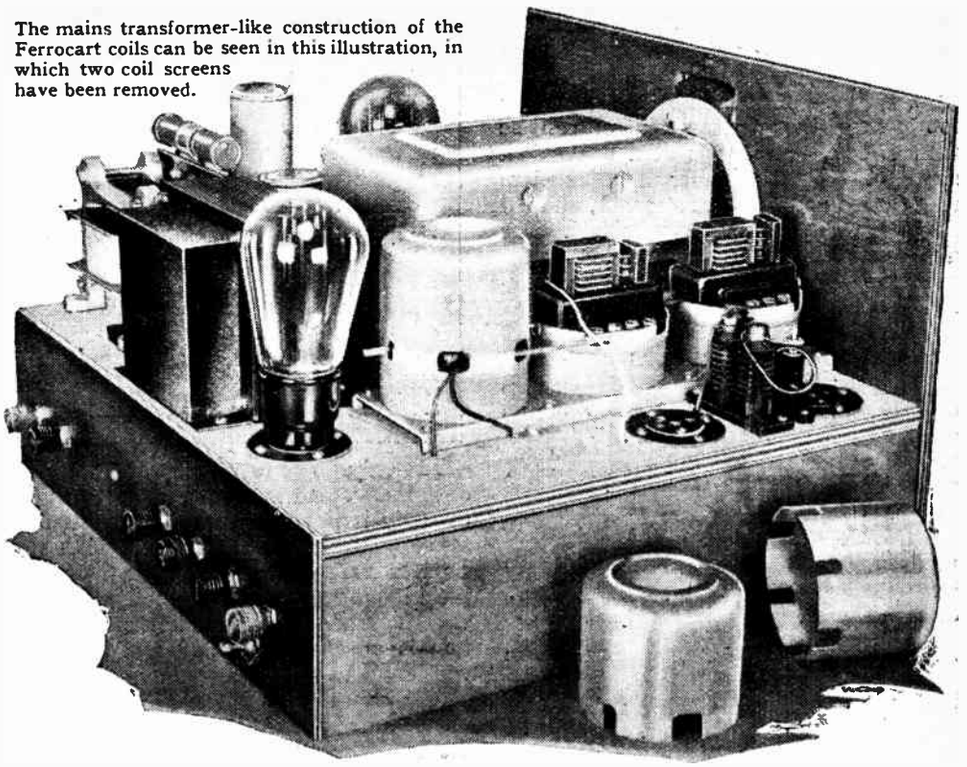
Ferrocart III—chassis mounting type, without terminals, and the leading-out wires are brought through the baseboard beneath the component. For the sake of safety, and to facilitate the connection to the mains, a 5-way terminal block is fitted as an anchorage to the primary tappings.

The frame of the gang condenser is earthed by its contact with the metal-covered chassis, and so it is of the first importance to see that a really sound connection is made. The fixing bolts must all be well tightened up, and as they may slacken after a time, due to the compression of the wood, it is a wise plan to go over the set a week or so after it has been built, and re-tighten all bolts. The coils are supplied mounted on a metal strip, and here, again, care must be taken to see that the strip makes good contact with the base. The switch rod for the coils should be earthed by a metal contact bolted to the coil strip and pressing against the rod between the filter and intervalve coils. Without such an earthing contact, instability will be found on the long waveband, and ganging will be affected.

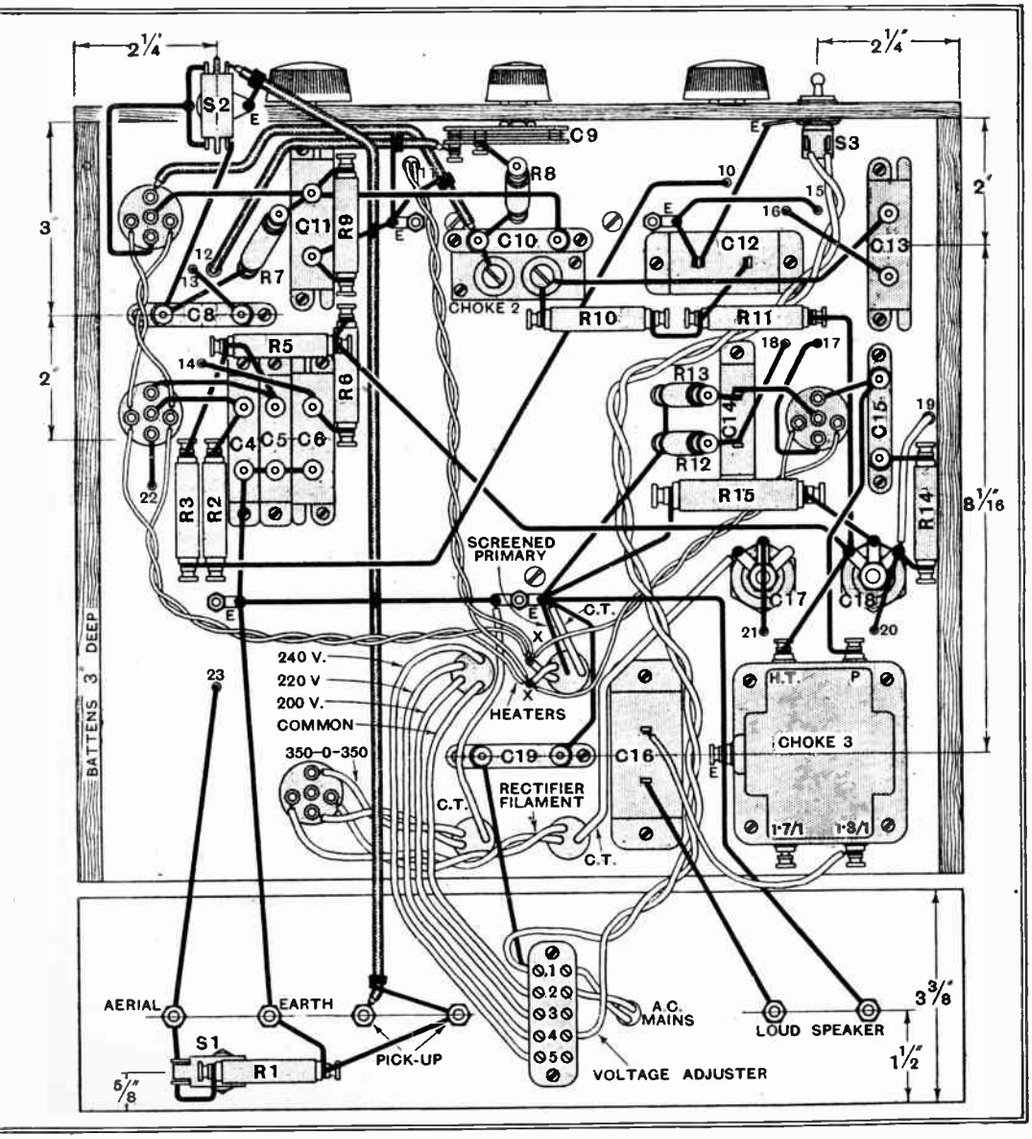
In order to prevent hum on operating the radio-gram switch, the metal body of this component is earthed by a large tag inserted under its fixing nut, and the same course is adopted for the mains on-off switch. Since the wires to the latter are in the mains circuit, they must be kept away from other components, and in order to avoid modulation hum due to H.F. currents being transferred from them to the receiver circuits, a 0.001 mfd. 1,000 volts test condenser C19 is connected between the mains and earth.

No. 22 gauge tinned copper wire is used throughout for wiring, and the use of screened sleeving is confined to the gramophone circuits and the anode side of the detector valve. No use is made of this sleeving in the H.F. circuits, since it has been found unnecessary in this case, and it tends to introduce losses.

The mains transformer-like construction of the Ferrocart coils can be seen in this illustration, in which two coil screens have been removed.



HE BASEBOARD, ALSO COMPLETE WIRING PLAN



The Trimmers

Apart from the choice of the correct tapping on the output choke to suit the particular speaker employed, the initial adjustments are confined to the ganging. These are few in number, and readily carried out, but it is important that they be made accurately. The grid circuit of the H.F. valve will be found to have the highest stray capacity, so that the trimmer on this circuit must be nearly fully screwed out, whereas the trimmers on C1 and C3 should be nearly fully screwed home.

It is essential for the trimming to be adjusted on a very low wavelength, but if it be found impossible at first to tune in a suitable station a preliminary adjustment should be made on a higher wavelength. After this there should be no difficulty in receiving a station on a wavelength below that of the London National, and the ganging can then be accurately adjusted. When ganging the local-distance switch *must* be at distance.

Ferrocart III—

While ganging it is important to use as much reaction as possible without the set actually oscillating, and if the signal be too strong the volume control can be turned down until it is at a convenient strength. Each trimmer is adjusted in turn for maximum signal strength, and the settings will be found quite critical. The aim should be to arrive at a setting for each trimmer such that any further alteration causes decreased signal strength.

LIST OF PARTS

After the particular make of component used in the original model, suitable alternative products are given in some instances.

1 3-gang condenser, 0.0005 mfd., with right-hand trimmers — **British Radiophone**
1 Dial and dial light assembly — **British Radiophone**
1 Reaction condenser, differential or straight, 0.00015 mfd., **C9** — **Formo 23c** (Polar, Ormond)
1 Set of Ferrocart coils — **Colvern**
2 H.F. chokes, Ch1, Ch2 — **McMichael "Binocular Junior"**
4 5-pin Valveholders — **Clix chassis-mounting type** (Eddystone)
1 Volume control, 10,000 ohms, **R4** — **Colvern ST5C** (British Radiophone, Igranic, Watmel)
1 Electrolytic condenser, 4 mfd., **C17** — **T.C.C. type 802**
1 Electrolytic condenser, 8 mfd., **C18** — **T.C.C. type 802**
2 Fixed condensers, 2 mfd., 250 v. D.C. working, **C12, C16** — **T.C.C. type 65**
1 Fixed condenser, 1 mfd., 250 v. D.C. working, **C14** — **T.C.C. type 65**
2 Fixed condensers, 0.1 mfd., non-inductive, 400 v. D.C. test, **C4, C5** — **T.C.C. type 50**
3 Fixed condensers, 1 mfd., non-inductive, 400 v. D.C. test, **C6, C11, C13** — **T.C.C. type 50**
1 Fixed condenser, 0.0005 mfd., **C7** — **T.C.C. type 34**
1 Fixed condenser, 0.0001 mfd., **C8** — **T.C.C. type 34**
1 Fixed condenser, 0.0002 mfd., **C10** — **T.C.C. type 34**
1 Fixed condenser, 0.01 mfd., **C15** — **T.C.C. type 34**
1 Fixed condenser, 0.001 mfd., mica, 1,000 v. D.C. test, **C19** — **T.C.C.** (Dubilier)
2 Q.M.B. make-and-break switches, S1, S3 — **Bulgin S80**
1 Q.M.B. change-over switch, S2 — **Bulgin S81** (British Radiophone, Claude Lyons)
1 Pentode output choke, Ch3 — **Telsen power type W172** (R.I.)
1 2,500 ohms speaker field replacement choke, Ch4 — **Sound Sales** (R.I., Scott Sessions)
1 Mains transformer, screened primary, 350-0-350 v. 60 mA, 4 v. 2.5 amp. C.T., 4 v. 3.5 amp. C.T. — **Bryce** (Challis, Parmeko, R.I.)
1 L.F. transformer — **Lewcos type L.F.T.4** (Varley)
1 Resistance, 100 ohms, **R1** — **Graham Farish "Ohmite"**
1 Resistance, 250 ohms, **R2** — **Graham Farish "Ohmite"**
1 Resistance, 300 ohms, **R13** — **Graham Farish "Ohmite"**
1 Resistance, 500 ohms, **R8** — **Graham Farish "Ohmite"**
1 Resistance, 1,000 ohms, **R9** — **Graham Farish "Ohmite"**
1 Resistance, 6,000 ohms, **R6** — **Graham Farish "Ohmite"**
1 Resistance, 10,000 ohms, **R14** — **Graham Farish "Ohmite"**
2 Resistances, 20,000 ohms, **R3, R10** — **Graham Farish "Ohmite"**
1 Resistance, 30,000 ohms, **R11** — **Graham Farish "Ohmite"**
2 Resistances, 50,000 ohms, **R5, R12** — **Graham Farish "Ohmite"**
1 Resistance, 250,000 ohms, **R7** — **Graham Farish "Ohmite"**
1 Resistance, 25,000 ohms, 3 watts, **R.15** — **Graham Farish "Ohmite" Power type "HD"** (Dubilier, Erie, Claude Lyons)
1 5-way Connector — **Wilburn**
6 Terminals, aerial, earth, L.S.+, L.S.−, 2 pick-up (Belling-Lee, Eelex, Igranic) — **Clix type "B"**
1 Plymax baseboard, 14in. x 12in. x ¾in. — **Peto-Scott** (Prepared Metal Base Plate, bent and drilled Colvern)
Panel, oak-faced ply, 9in. x 14in. — **Peto-Scott**
2 Lengths screened sleeving — **Harbros** (Goltone, Lewcos)
2 ozs. 20 tinned copper wire, wood, 6 lengths sistoflex, etc.
Screws: 14 ¾in. No. 4 R/hd.; 4 ¾in. No. 6 R/hd.; 20 ¾in. No. 4 R/hd.; 4 ½in. No. 4 R/hd.; 12 ½in. No. 4 R/hd.
Valves: 1 MVSG, 1 41MHL, 1MP/PEN, 1 442BU — **Cossor**

Readers selecting alternative components from the suggestions given above, should remember that slight modifications may be necessary in the drilling positions for fixing these components on the panel and baseboard. The prepared metal base plate listed as an alternative will, we understand, be drilled to accommodate the components used in our design and listed in black type.

PROGRESS NUMBER

NEXT week's issue will be devoted principally to a survey of recent wireless progress. Successive advances of outstanding interest have been crowded into the last few years and it is felt that the time is ripe to take stock of the situation and see where we stand to-day.

There will be articles devoted to the advances made in H.F. amplification, detection, L.F. amplification and loud speaker technique, as well as the evolution of the superheterodyne.

The only point to watch while carrying out this operation is that too much capacity is not used, for then the tuning range would be restricted. If stray capacities are kept down to the figures of the original receiver, and there is no reason why they should not be if the specification is adhered to, the correct condition will be found with the trimmer on C2 very nearly fully unscrewed. When the adjustment is completed at a low wavelength the ganging will hold over the whole of both wave ranges.

The next step is to select the optimum tapping on the output choke, so that the speaker is correctly matched to the pentode. If a moving-coil speaker with a pentode transformer be used the 1-1 ratio will be needed, and in this particular case it would be possible to dispense entirely with the output choke and C16, and to connect the primary directly in the pentode anode circuit. In general, however, other types of speaker will be used, and the ratio should be selected experimentally for the best quality. The values of the compensating circuit R14 and C15 have been chosen to suit the majority of moving-coil speakers, but with moving-iron types it may pay to experiment with other values.

With a good aerial, and after dark, the sensitivity is sufficient to permit good reception of most of the stronger Continental stations with reaction at zero. It will usually pay, however, to use a little reaction, even although it may be unnecessary from the point of view of signal strength, and to keep the volume at the desired level by reducing the setting of the volume control. In this way it is possible greatly to increase the selectivity above its normal level, although this latter is unusually high.

Reaction is particularly valuable when receiving a station situated in wavelength close to the local, and, in fact, when searching it is often advisable to work with reaction close to the oscillation point and the volume control turned well down. When the desired station is found it can then be tuned in accurately, and the reaction reduced while simultaneously increasing the volume-control setting, until the best compromise between selectivity and quality is found for that particular station.

It is unnecessary to say much here about the performance obtainable, for details of this have already appeared in *The Wireless World*, and the completed receiver will speak for itself. It may be said, however, that the sensitivity is entirely adequate for most normal purposes, hum is absent, and the quality of reproduction reaches a very satisfying standard, for both high and low notes are present in the output and the volume obtainable is quite considerable. It is in the matter of selectivity that the receiver is so outstanding, and it is not too much to say that, among ordinary receivers, it is surpassed only by the superheterodyne.

The completed receiver was tested within nine miles of Brookmans Park, and, while both locals were working, it proved possible to receive some seventy stations on the medium waveband alone. The spread of the London Regional was confined to about three channels on either side, and that of the London National to about six channels. In its power of separating adjacent distance stations the receiver proved entirely adequate, and only in rare cases was intelligible modulation interference experienced.

BLUE PRINTS

For the convenience of readers constructing this receiver, full-sized blue prints of the complete layout and wiring diagram are available from the publishers at 1s. 6d. post free.

A receiver built to this design is available for inspection at 116-117, Fleet Street, London, E.C.4.

CLUB NEWS

For Short-wave Enthusiasts

THE London Chapter of the International Short Wave Club holds meetings which are open to members and non-members alike. The meetings are held at the R.A.C.S Hall, Wandsworth Road, London, S.W.8.

Full particulars are obtainable from the European representative, Mr. A. E. Bear, 10, St. Mary's Place, Rotherhithe, London, S.E.16.

The Twelfth Year

THE Ilford and District Radio Society is enjoying its twelfth year of active work. On a recent evening Mr. H. L. Ranson lectured on "Measuring the Performance of a Receiver," giving a demonstration on laboratory lines and testing a commercial A.C. receiver with a standard signal generator.

Hon. Secretary: Mr. C. E. Largen, 16, Clements Road, Ilford.

A Local Loud Speaker

PARTICULAR interest attached to the last meeting of the Bristol and District Radio and Television Society, as a local enterprise—The Ray Engineering Co., Ltd., of Bristol—gave a demonstration of their Ray Senior P.M. Speaker. When demonstrated on a 5-watt amplifier and pick-up reproduction was very good, and the output at high and low frequencies was considered by members to be above the average.

Hon. Secretary: Mr. G. E. Benskin, 12, Maurice Road, St. Andrew's Park, Bristol, 6.

Loud Speaker Night

THE types of loud speaker used during the last ten years were interestingly described by Mr. F. Neale at the last meeting of the Tottenham Wireless Society. Almost forgotten types, such as the Sterling Fan, Western Electric Kone, and the Yankee three feet ones were recalled to memory. Mr. Burns followed with a talk on "Loud Speaker Construction," and the evening concluded with a practical demonstration of modern types.

Hon. Secretary: Mr. W. B. Bodemeaid, 10, Bruce Grove, Tottenham, London, N.17.

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THE EXPERTS ON MAINS SETS AND AMPLIFIERS

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	£ s. d
1 Williams & Moffat Unicon 3-gang condenser, .0005 mfd., with right-hand trimmers, Type U33RD, complete with dial and light assembly	1 6 6
1 4-Volt bulb	6
1 Bet Colvern Ferrocart coils	2 10 0
2 Ready Radio New Type Binocular H.F. chokes	10 0
2 Clix Chassis Mounting Type 5-pin valve holders	3 9
1 Ready Radio .00015-mfd. differential reaction condenser	2 6
1 Watmel wire wound volume control, 10,000 ohms	5 6
2 Williams & Moffat Bakelite knobs to match above with condenser assembly	1 0
1 T.C.C. 4-mfd. electrolytic condenser, Type 802	5 0
1 T.C.C. 8-mfd. electrolytic condenser, Type 802	6 0
2 T.C.C. 2-mfd. fixed condensers, 250 v. D.C. working, Type 65	5 4
1 T.C.C. 1-mfd. fixed condenser, 250 v. D.C. working, Type 65	2 0
2 T.C.C. .1-mfd. fixed condensers, non-inductive, 400 v. D.C. test, Type 50	3 8
3 T.C.C. 1-mfd. fixed condensers, non-inductive, 400 v. D.C. test, Type 50	7 0
1 T.C.C. .0005-mfd. fixed condenser, Type 34	1 3
1 T.C.C. .0001-mfd. fixed condenser, Type 34	1 3
1 T.C.C. .0002-mfd. fixed condenser, Type 34	1 3
1 T.C.C. .01-mfd. fixed condenser, Type 34	3 0
2 Bulgin S.80 Q.M.B. switches	3 0
1 Q.M.B. change-over switch, Bulgin, Type S81	1 9
1 Varley Pentode Nichoke, P.P.24	12 6
1 Sound Sales 2,500 ohms speaker field replacement choke, Ch4	16 0
1 Mains transformer, screened primary, 350-0-350 v. 60 mA. 4 v. 2.5 amp. C.T., 4 v. 2.5 amp. C.T. Partridge	3 0 0
1 Wilburn 5-way connector	2 6
1 Ready Radio 3-1 ratio L.F. transformer	8 6
1 Erie 100 ohms resistance	1 0
1 Erie 250 ohms resistance	1 0
1 Erie 300 ohms resistance	1 0
1 Erie 500 ohms resistance	1 0
1 Erie 1,000 ohms resistance	1 0
1 Erie 6,000 ohms resistance	1 0
1 Erie 10,000 ohms resistance	1 0
2 Erie 20,000 ohms resistances	2 0
1 Erie 30,000 ohms resistance	1 0
2 Erie 50,000 ohms resistances	2 0
1 Erie 250,000 ohms resistance	1 0
1 Erie 25,000 ohms resistance, 3 watts	3 0
6 Belling Leg terminals, aerial, earth, L.S. L.S. -, P pickup	1 3
1 Prepared metal base plate, bent and drilled	10 6
1 Insulmax panel, 9in. × 14in., drilled	2 6
2 Lengths Goltone screened sleeving	1 6
2 ozs. 20 tinned copper wire, wood 6 lengths Sirtoflex	2 6
Constructor's full-size blueprint (no charge)	
4 Mullard valves: MM4V, 354V, Pen4V, D.W.3	3 7 6
1 Direct Radio "159" Type table cabinet, in walnut	1 5 0
	£18 6 6

KIT Model No. 1

(less valves and cabinet) **Or 12 monthly payments of £1.5.0** **£13.14.0**

KIT Model No. 2

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Primary D.C. Resistance ..... 400 ohms.
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Primary Inductance ..... (each half)
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Primary D.C. Resistance ..... 400 ohms.
Sec. D.C. Resistance (3/1) ..... 130 ohms.
Sec. D.C. Resistance (75/1) ..... ·64 ohms.
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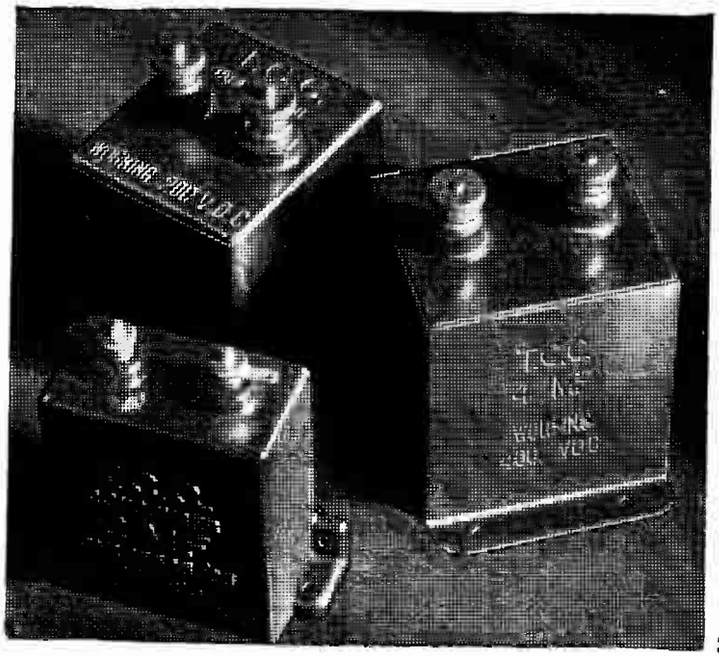

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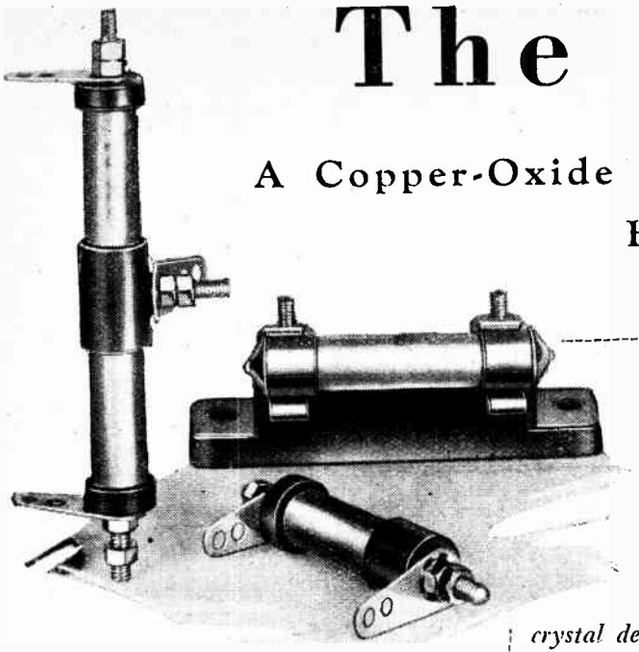
The Westector

A Copper-Oxide Rectifier for H.F. Currents



The new Westinghouse Westectors shown alongside a grid leak. The larger of the two is type W.M.26 and the smaller W.4.

THE valve has for so long been supreme as a detector in receivers that it comes as something of a shock to find any serious rival. Non-thermionic rectifiers have, of course, long been known, as witness the crystal detector, but either their efficiency or their reliability has been so low that they have been completely displaced by the valve. The properties of the new Westinghouse detector are such that it can replace a diode detector in the superhet and still permit A.V.C. to be obtained.

THE use of metal rectifiers in H.T. supply units is quite familiar; it is a development of these which now threatens the supremacy of the valve. Metal rectifiers are now available for the rectification of radio-frequency currents; in their physical dimensions they are strictly comparable with a grid-leak type resistance, as can be seen from the illustration; they require no current or voltage supply, they need no adjustment, and, so far as short tests can determine, they are reliable.

The rectifier, of course, does not amplify, and if its efficiency be compared with either an anode bend or a grid detector, it will be found greatly inferior. This is not a fair comparison, however, for these methods of valve detection are really dual stages, in which a single valve gives both rectification and amplification. To be fair, a Westector must be compared with a diode detector; in theory, it should give a practically identical performance, and practical tests show that the difference with correctly designed circuits is negligible.

Comparable with a Diode

There are two main types of Westectors, the W. 4 and the W. 6; these are both half-wave rectifiers, strictly comparable with an ordinary diode detector. Each is rated to pass a maximum current of 0.25 mA. and the W. 4 is designed for a maximum input of 24 volts peak, whereas the W. 6 can handle up to 36 volts. Full-wave types are also available, and these are comparable with the duo-diode; they consist of a pair of W. 4 or W. 6 rectifiers and are designated as types W.M. 24 and W.M. 26. Their characteristics are the same, but as the signal input is normally applied in push-pull, the permissible values are doubled, and a total of 72 volts peak can be applied to the W.M. 26. As far as the output circuit is concerned, of course, the rectifiers are in parallel, so that the maximum current output becomes 0.5 mA.

In the design of these rectifiers, every precaution has been taken to reduce the inevitable capacity to a minimum. In spite of this, however, the capacity is rather higher than that of a valve, and the rectifiers are, generally speaking, not so suitable for use directly on the medium-wave broadcast band as in I.F. circuits. At 1,000 kc. (300 metres), the makers quote the equivalent load of the detector as 10,000 ohms. This is rather a low figure, and would damp any tuned circuit to which it might be connected. Furthermore, it might necessitate the use of a power H.F. stage immediately preceding the detector.

These difficulties will probably be overcome, but at present the chief practical use for the Westector undoubtedly lies in the superheterodyne. At the low intermediate frequency (110 kc. or so) generally employed the damping is much less, for the capacity of the unit is comparatively unimportant. As a result, the preceding tuned circuit can be of more normal effective efficiency, and the necessity for a power H.F. stage is avoided. Indeed, an ordinary variable-mu valve can be used satisfactorily to drive the detector.

In all respects, the Westector behaves as a diode detector in a superheterodyne, and in the same way it may be used to provide automatic volume control. As a test on the operation, the type W. 26 was substituted for a duo-diode valve in an A.V.C. superheterodyne with an intermediate frequency of 110 kc., and, judged audibly, there was no difference whatever in the performance. A type W. 6 was then substituted for an ordinary diode detector in an A.V.C. superheterodyne of similar type, and here again no audible change was detectable. The response is understood to be substantially linear, and this is borne out by the fact that during the tests distortion remained at as low a level as with a valve detector.

Owing to the fact that neither electrode need be at earth potential, modified circuits become permissible, and the makers advise the use of the arrangements shown in Fig. 1 (a) and (b) for half- and full-wave rectification respectively. If A.V.C. be used, the polarity of the rectifier is important. It should be understood that the use of these circuits is not essential, for the ordinary diode valve circuits can also be used, treating the positive and negative terminals of the Westector as the cathode and anode. The makers claim.

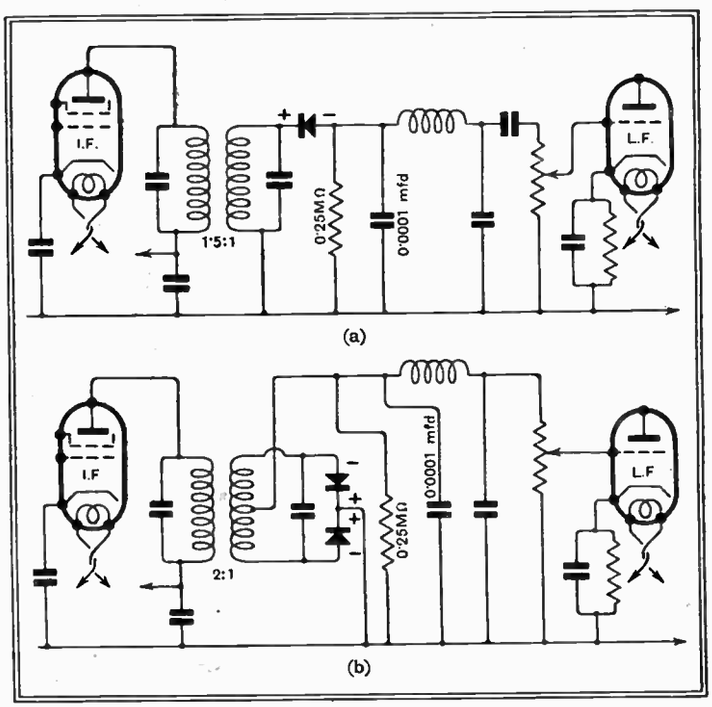


Fig. 1.—The recommended connections of the Westector as the second detector of a superheterodyne are shown at (a) for half-wave rectification and at (b) for full-wave.

The Westector—

however, that, with the recommended arrangement, the I.F. currents in the output are about one-tenth of those with more normal circuits, so that less I.F. filtering is needed. In order to reduce damping of the tuned circuits to as low a figure as possible, step-down ratios in the transformers are advised, and the ratios are marked on the circuits.

It would appear, therefore, that these rectifiers open up a useful alternative to the valve diode detector in superheterodynes, and it seems probable that one of their chief applications will lie in the development of simple automatic volume-control systems. The makers are the Westinghouse Brake & Saxby Signal Co., Ltd.

DISTANT RECEPTION NOTES.

W.W. Station Finder

THOUGH I had no doubt after reading the published description of it that *The Wireless World* Station Finder was a good thing, I must confess that I had hardly expected to find such extraordinary accuracy as it has proved to possess during the week that I have had it in use.

I tried it first of all with a particularly selective seven-valve super-heterodyne which is calibrated to the proverbial hair's breadth. In this way I was able to check to a nicety the readings of the Station Finder. After the small adjustment to the trimmer which took about five minutes to make, the Station Finder showed itself to be dead accurate over the whole of the waveband that it covers, that is, between Fécamp on 223 metres and Ljubljana on 574.7 metres. Every station came in at exactly the setting indicated by the Finder.

The next test was to apply it to an uncalibrated set which was completely strange to me. A preliminary survey of the key stations indicated that no further adjustment of the trimmer was required and within an hour I was able to prepare with the help of the Station Finder a large-sized calibration chart for the set based upon the readings required for no less than thirty-eight stations.

The Station Finder is unquestionably a real boon to the long-distance enthusiast, for it makes the business of identifying stations not mere guesswork but a certainty. I have only one criticism to make: it takes in only the medium waveband. Could the designer evolve a model which covers both the medium and the long waves?* Possibly, too, something might be done with a short-wave Station Finder, which would be invaluable. Short-wave reception lends itself admirably to the absorption method of measuring frequencies or wavelengths.

I have received an interesting letter from a Marlow correspondent, who asks whether I was listening to American stations during the early hours of February 14. He reports wonderful reception of many U.S.A. transmissions, whose strength he describes as "honestly comparable to that of European transmissions." As luck would have it, I did not sit up late on that night, though I have heard from several quarters that transatlantic reception was then particularly good. There have been also some very favourable nights since then.

It was stated some time ago that Germany was making certain changes in her relay network in view of the large service areas obtained by the high-powered transmitting stations. Though I have no official information on the subject, it would appear that on several nights during the week at any rate the Berlin relay, which works on the wavelength of 283 metres, is using considerably more than the half-kilowatt with which it is credited in the lists. Further, it seems as if this station were then working without wavelength partners. It can be picked up at full loud-speaker strength and without a trace of the distortion one associates with common-wave transmissions.

Readers should note that this relay now often furnishes the best means of receiving the Berlin programmes, for the volume obtainable from the 283-metre transmission is considerably greater than that from the parent station, Berlin Witzleben, on 419.5 metres.

D. EXER.

* A long-wave model was considered, but it was thought that the cost could not be justified in view of the limited number of long-wave stations and the fact that they are really easy to identify compared with those of the medium band.—ED.

Correspondence

The Editor does not hold himself responsible for the opinions of his correspondents

Correspondence should be addressed to the Editor, "The Wireless World," Dorset House, Tudor Street, E.C.4, and must be accompanied by the writer's name and address

Empire Broadcasting

PLEASE accept my very best wishes for 1933. My very best thanks and esteemed appreciation in "The Great Push" you have given to Empire broadcasting.

Using the battery version of the "Single Dial Super" in conjunction with the S/W adaptor published in your issue of December 23rd, 1931, I have nightly received the tests from the Empire Station at full loud speaker strength. The 31-metre transmission is the only satisfactory wave received here, the 49-metre being swamped by Moscow and Morse. It is rather strange to relate that the transmissions to the Canadian and Indian zones are received at practically the same strength as those transmissions intended for South Africa, and, of course, the times are much more convenient for Mauritius. As regards times, I think that these could very well be modified. You will appreciate that remaining out of bed from 10 p.m. till midnight is not very appealing to one in this climate. Of course, it is quite OK for the South African folk; they get the transmission at 8 p.m., a most convenient time, but we are two hours ahead of them, so it means 10 to 12 p.m. for us. I do think the authorities at home might alter the time of the transmission to South Africa from 17.00 to 19.00 G.M.T. I don't think the South African folk would mind; this would coincide with 9 to 11 p.m. here, and, of course, 7 to 9 p.m. South African time. Well, it is no use grumbling, and I must thank you for what we have got. In any case, it is 100 per cent. superior to G5SW, which was never more than a whisper, and not that on most evenings. Without doubt, the most consistently received station is Poutoise France; he just roars through any old time, but his modulation is just appalling.

RICHARD C. WADE,
O/C Radio.

H.M. Radio Station,
Rose Belle, Mauritius.

Daventry 5XX

IN the issues of *The Wireless World* dated February 10, under the heading of Broadcast Brevities, your special correspondent makes some remarks concerning the Daventry 5XX National programme transmitter, which we consider misleading and likely to give a grossly inaccurate impression of the reliability of that equipment.

We think you will be interested in the actual breakdown figures of Daventry 5XX taken over two periods of six months in 1932 and up to the end of the first week in February of this year. For the six months ended June 30, 1932, the percentage breakdown was 0.034 per cent., for the subsequent six months 0.056 per cent., and for the period January 1 to February 4, 1933, the figure was 0.032 per cent. You will observe that the percentage breakdown of the station is actually less this year than it was either in the first or the last half of 1932. Further, more than half the breakdown periods were due to valve failures which, of course, have no relation to the age of the transmitting equipment.

F. W. BISHOP,
for Chief Engineer,
The British Broadcasting Corporation.

What Does the Public Want?

A LISTENER may be content with local station reception for six days a week, but occasionally requires to receive a distant transmission (e.g., Radio Paris on Sundays). To do this, the receiver must have a fair performance, according to the listener's ideas of selectivity and quality. Because of this performance on the one desired distant transmission, the remainder of distant transmissions must perforce come into step with it.

So we get the listener with good performance by his receiver on two local and one distant stations, with all others thrown in whether he particularly wants them or not.

Warwickshire. R. F. COOKE.

UNTIL a few months ago I resided in London, and I think that it is due to "Diagnostic" living within a service area of a British station that he writes as his view that few people listen to foreign transmissions. Almost any set, under these conditions, will give interference-free reception of the local stations, but the reception of foreign programmes on nearby wavelengths is impossible. So that except, perhaps, on Sunday, when the English programmes from Radio Paris are on the air, the set is usually used for local reception. Take this set outside a service area, and it will be found that only the National is worth listening to, of all the English stations. In this district French and German stations have a greater signal strength than the home medium-wave

ones, and what is more, they are a much steadier signal. The result is that if there is a vaudeville programme on the Regional, sets are tuned in to it, and the whole is blotted out every few minutes by a more powerful foreign station. When the vaudeville is over, the set is tuned to whichever powerful station happens to be sending over music. It is to help solve such problems that better sets are needed. But the number of valves required seem excessive when a purchaser says, "But I only want to receive the English stations."

J. S. THOMAS.

Chippenham, Wiltshire.

IN the vehement correspondence engendered by "Diagnostic," one is left with the impression that either receivers for local stations are all that one needs, or else that the possessor of a long-range and sensitive super-het. is wasting the money he has invested in the expensive set.

But what is a local station?

The Londoner, with his usual parochial mind, imagines that his own experience covers the whole of this island kingdom. With a two- or three-valve set he can receive the two London transmitters without interference, and thinks that the rest of his countrymen can do likewise. In Sussex, the *local* station is Fécamp, as reference to any map will prove, the nearest B.B.C. transmitter being somewhere in the region of eighty miles distant. In order to receive the English transmissions one must possess a set that will equally receive a large number of foreign programmes. I installed the Monodial A.C. Super, not for its power to pick up some 140 stations (which it does), but because it enables me to receive *any* programme I choose without any interference by other stations, and yet, by its tone corrector, give a quality denied to me by any other super-het.

Because I possess an acknowledged supersensitive and selective receiver, I do not consider that ether-searching is its main function. For fully 90 per cent. of my listening time I am satisfied with one or other of the B.B.C. programmes. For the balance, some attractive foreign programmes selected from *The Wireless World* fill the bill. I am quite sure that, like myself, a preponderating number of listeners have installed the Monodial and other selective sets in order to receive B.B.C. programmes *perfectly*, no matter where they may be.

E. HOWARD BURNETT.

Hove.

I AGREE with your correspondent "Diagnostic" in his contention that there is a public demand for a simple type of receiver that is capable of receiving the local station with good quality and nothing much else. The majority of listeners do not make a practice of tuning in foreigners, except perhaps on Sundays.

The snag lies in the expression "local station." Here, in the South of England, to receive satisfactorily London Regional and Midland Regional clear of interference a very selective set is necessary. Although one may be quite content to listen to these stations, a simple type of receiver will not deliver the goods. All I want is a set that will give me three stations with good quality after dark, but such a set must necessarily throw in foreign stations whether I want them or not.

"Diagnostic's" criticisms of receiver design seem to be based on the supposition that one lives near a Regional station.

Fareham. "SOUTHERNER."

I WAS very interested in your leader and the letter signed "Diagnostic" regarding the range required by present-day listeners in their receivers.

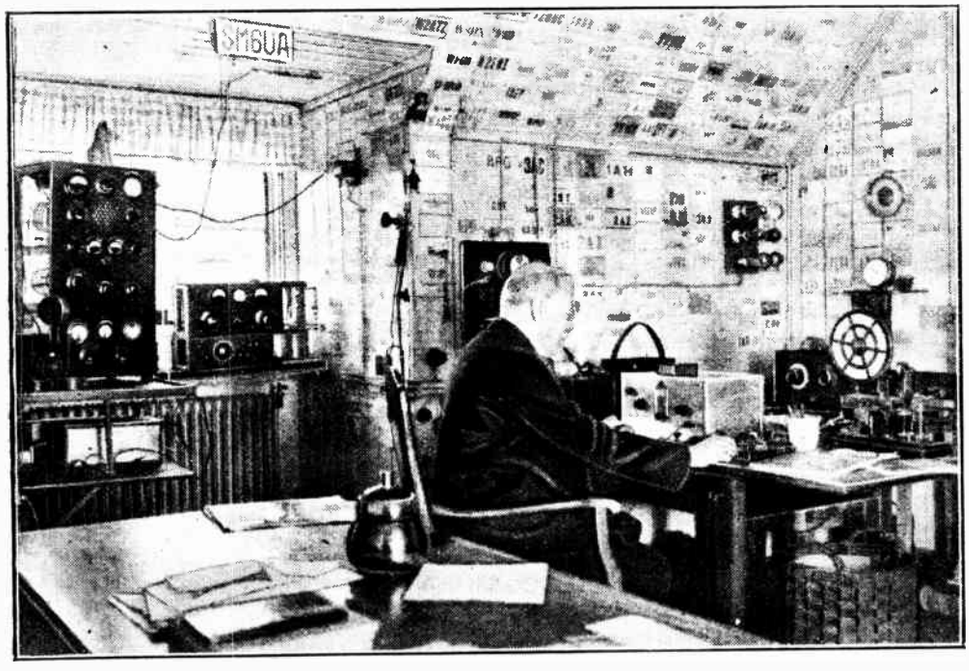
From my geographic situation, the only stations giving "satisfactory" service are Belfast and Daventry 5XX. Possibly I will be able to add Athlone to the list later. When I say satisfactory I refer not so much to quality as freedom from fading. If I am prepared to sit with my hand on the volume control (my set has one H.F. stage) and follow the fading, I can obtain results which satisfy my not too critical ear from most of the important European stations. Of course, on really bad nights this "following of the fading" will prove impossible or not worth while owing to distortion.

I have been following the details of A.V.C. as set out in your various articles over the past twelve months with the greatest interest, and am most definitely convinced that a smaller set than a super-het. so fitted would find a very large market.

I am well satisfied with the B.B.C. programme in 80 per cent. of my listening, but when the alternatives available are too highbrow or too religious I switch over to the Continent.

J. W. BROWN.

Northern Ireland.



SM6UA. Owned by Mr. J. F. Karlson, of Redbergsplatzen, Göteborg, Sweden, one of the oldest and certainly the best known Swedish amateur, whose original call-sign was SMUA. During the summer months the station is often transferred to Mr. Karlson's country residence at Orust. He is always glad to work or assist in tests with anyone, and the "mural decorations" indicate that he has been in communication with all parts of the world.

"DIAGNOSTIC" is apparently like a large number of British manufacturers in thinking that the public should be supplied with what is good for them and not what they ask for.

But, seriously, what would be the use of a super-quality local station receiver to a large number of listeners, as, for instance, the residents of the City of Portsmouth? A measurement of field strength would indicate that many foreign stations are received as, or more, powerfully than the B.B.C. stations. In these conditions it is quite obvious that a set must first have selectivity of a high order and a degree of sensitivity sufficient for reasonable quality. Even bearable quality cannot be obtained if the set has to be worked full out.

Without wishing to be dogmatic, I can say that definitely all the listeners I know in this locality use the foreign transmission to a greater or less degree, and find considerable entertainment value therein. Furthermore, I am of the opinion that sets can be made to give quality satisfying to most music-lovers, and yet give a degree of selectivity sufficient to separate stations which are not actually heterodyning each other.

No! "Diagnostic," I think *some* of the public are demanding the type of receivers they require.

L. S. COLLINS.

Portsmouth.

THE public want, as they always have from time immemorial, something different, something new, something for a change from that which they have hitherto been accustomed; hence the desire for sets to reach out farther and farther.

Just take a note of those chronic radio grumblers we know, and we can bet a modern super-het against their "local" set that they are very limited in their programme selections.

That our programmes are greatly appreciated abroad will not be denied; and for the same reason that theirs are equally appreciated over here—they constitute a welcome change from the type of entertainment which, sooner or later, will become tiring owing to its familiarity.

That the reception quality of foreign stations is not so good as the local will also not be denied, but this is the age of progress and we must urge our manufacturers to keep abreast of the times.

There is ample scope for improvement yet, and it is futile to deny that the general public will ever consider that anything is so good that it cannot be better.

Our manufacturers *must* go on and on and on, *or else they will go out.*

Highbury, N.5. W. GARTLAND.

LABORATORY TESTS

New Radio Products Reviewed

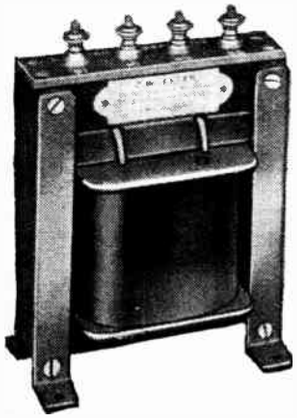
EELES L.F. TRANSFORMER

ALTHOUGH the size of this transformer is appreciably greater than the majority in general use to-day, it possesses the distinct advantage that comparatively large amounts of D.C. can be passed through the primary winding without serious effect on its inductance. The resistance of the primary is 800 ohms. With no D.C. flowing the primary shows an inductance of 34 henrys; with 4 mA. this falls to 27.5 henrys, and with 10 mA. the inductance is 20.5 henrys. Since valves taking anode currents of this magnitude will be of fairly low impedance, an inductance of 20 henrys or so under working conditions is quite adequate to ensure a good bass response.

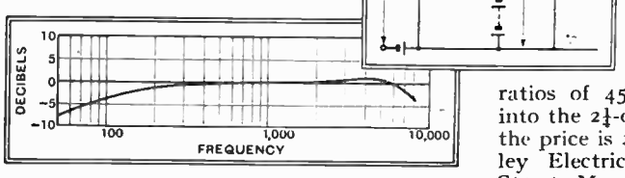
The transformer was tested in an amplifying stage fitted with a valve of 10,000 ohms A.C. resistance and with 4 mA. of D.C. flowing in the anode circuit. The quality of reproduction was exceptionally good, comparing very well indeed with that usually associated with parallel-fed coupling systems, in which the primary inductance is maintained at a high level by deflecting the steady D.C. through a high anode resistance.

At 50 cycles the amplification is less than 8 decibels lower than that at 1,000 cycles, but from this point up to 7,000 cycles it is sensibly constant. At 8,000 cycles the drop is a shade less than 4 decibels only.

As a whole the performance is decidedly good. The transformer affords a voltage step-up of 1 to 4, and the price is 25s.



Eeles L.F. transformer giving step-up ratio of 1 to 4.



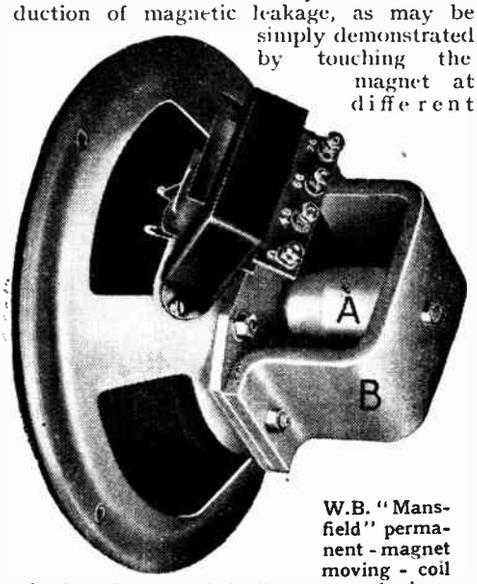
Overall characteristic curve of Eeles L.F. intervalve transformer.

The makers are C. W. Eeles, 17, Bramerton Street, Chelsea, London, S.W.3.

W.B. "MANSFIELD" LOUD SPEAKER

THIS inexpensive permanent-magnet moving-coil loud speaker is notable for the design of its field magnet. The magneto-motive force is supplied by the short centre pole piece which is a steel alloy of very high cobalt content. A special steel alloy having low reluctance (magnetic resistance) is used for the U-shaped return piece, and as a result a gratifying high flux density is concentrated in the gap for a minimum volume of the comparatively expensive cobalt alloy.

Another feature of this system is the reduction of magnetic leakage, as may be simply demonstrated by touching the magnet at different points with a screwdriver. Advantage has been taken of this to fit a steel diaphragm chassis, bolted directly to the top plate of the magnet. This has resulted not only in a slight reduction of production costs but also in greater mechanical strength and permanence of alignment.



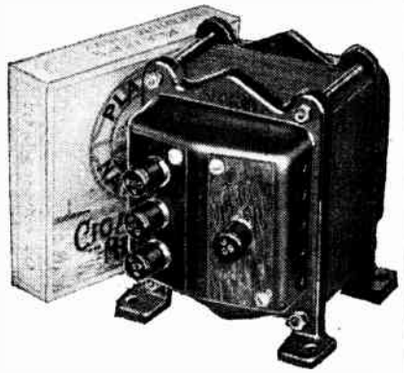
W.B. "Mansfield" permanent-magnet moving-coil loud speaker. A, cobalt alloy centre pole piece. B, low-reluctance alloy steel return piece.

On test the sensitivity was satisfactory having regard to the small dimensions of the magnet. The useful frequency range is from 100 to 4,500 cycles with a group of not too obtrusive resonances in the vicinity of 150 cycles. The 2,500-3,500 resonance which is a frequent fault in small moving-coil loud speakers was entirely absent in this model.

A tapped transformer with ratios of 45 : 1, 55 : 1, and 25 : 1 working into the 2½-ohm speech coil is included, and the price is 27s. 6d. The makers are Whiteley Electrical Radio Co., Ltd., Victoria Street, Mansfield, Notts.

HEAYBERD FILAMENT TRANSFORMERS

PARTICULARLY well-made filament transformers, giving an output of four volts, and especially well suited for use when converting a receiver to A.C. mains operation, are obtainable from F. C. Heayberd and Co., 10, Finsbury Street, London, E.C.2. Three models are available, described as the types 723, 727, and 731, their respective current outputs being 3 amps., 5 amps., and 10 amps.



Heayberd 4-volt 3-amp. filament transformer, model 723.

Tests were made with the smallest model, which will supply one to three A.C. valves. With one amp. flowing the secondary A.C. volts were 4.2, with two amps. 4.05, and with 3 amps. 3.92 volts. The regulation is quite satisfactory, and is as good as can be expected from a transformer of this type and size, irrespective of price.

The transformer is provided with a core of adequate size, and the winding is fully protected by the special cast aluminium end-plates adopted. It has a tapped primary winding to suit supply mains of from 200 to 250 volts at 50 cycles, while the secondary winding has a centre tapping. The price of the model 723 is 12s. 6d. The 5-amp. model costs 17s. 6d., and the 10-amp. type 22s. 6d.

UTEX TIME SWITCHES

SPECIAL switches designed to fit on the back of an alarm clock for the purpose of switching on and off the wireless receiver at any prearranged time can be obtained from the Utex Manufacturing Co., Ltd., 39, Holborn Viaduct, London, E.C.1. Two models are available, the one for use with battery sets, which costs 2s. 6d., and the other designed for including in the electric supply leads to an all-mains receiver. The price of this model is 5s. 6d. Either of these mounted in a full lever movement clock costs 5s. extra.

The switch is mounted close to the alarm winding handle and is actuated when the alarm mechanism is released by the rotation of the winding handle. They are quite easy to fit, as a special template is supplied with every model giving the correct position for the fixing holes.

A specimen mains model was mounted on an ordinary alarm clock, as described in the instructional leaflet, and has proved to be perfectly satisfactory. Having set the alarm to the hour at which a desired item in the programme is required, the clock then switches on the receiver without fail at the appropriate time.

B.S.R. AMPLIGRAM

An Electric Amplifier and Gramophone Unit Giving 5.9 Watts Undistorted Power Output

THE Ampligram is an A.C.-operated self-contained power gramophone designed primarily for public entertainment, and consists of a two-stage amplifier, an electric gramophone motor complete with automatic stop, a Marconiphone pick-up, tone and volume controls, and a high grade moving-coil milliammeter. The electrical equipment throughout is of the highest standard with all components conservatively rated to ensure that the unit will give a trouble-free service. Yet despite this wealth of equipment careful design has enabled the complete unit to be condensed to fit into a portable-type case of solid oak measuring 17in. × 21½in. × 11¾in. high. The lid when raised gives access to the turntable, valves, and all controls, albeit there are two only, their respective functions being volume and tone adjustment.

Matching Output Valve and Speaker

The mains input and voltage adjustment, also the loud speaker sockets, are located at the rear of the case, access to these being obtained by removing a panel held in position by two screws. The mains transformer is tapped to suit supply voltages of from 190 to 250 at 50 cycles. Provision is made to match the output valve to loud speakers of different impedance, the output transformer fitted giving the choice of three ratios, viz., 1:37.5, 1:19.4, and 1:13.7, these giving correct matching where speakers of 2 ohms, 7.5 ohms, and 15 ohms, respectively, are employed.

An AC/SG. valve occupies the first position in the amplifier with its circuit arranged as described by McDonald in *The Wireless World* dated November 12th, 1930. This is linked by a resistance-capacity coupling to a PP5/400 valve giving an undistorted output of 5.9 watts as the maximum. The volume obtained from this amount of power, using one of the many suitable heavy duty loud speakers, is ample to fill a hall seating up to 300 people.

High tension is derived from a full-wave valve rectifier—a UU120/500—and the smoothing is carried out by a choke of generous size and large capacity high voltage condensers.

Two models of the Ampligram, both identical so far as general construction and design are concerned, are available. These are known as the types AG1 and AG2. The only difference is that the model AG2 has provision for the attachment of a microphone and includes a special input transformer and a change-over switch.

Since these units are intended primarily for entertainment purposes, special attention has been given to the matter of reproduction. The tonal quality is exceptionally good, the bass response in particular being most satisfactory, for drums and other orchestral instruments rich in low notes are well in evidence but do not obtrude or overshadow the middle and upper registers. As a whole the reproduction is definitely pleasing, needle scratch is not very noticeable which is due largely to the fact that a response curve of the unit shows that from 50 cycles up to 5,000 cycles the amplification is sensibly constant, but above this upper limit there is a marked attenuation. It can truly be said that the Ampligram has attained a very high standard in reproduction and is undoubtedly in a class apart so far as electric gramophone reproducers are concerned.

FEATURES

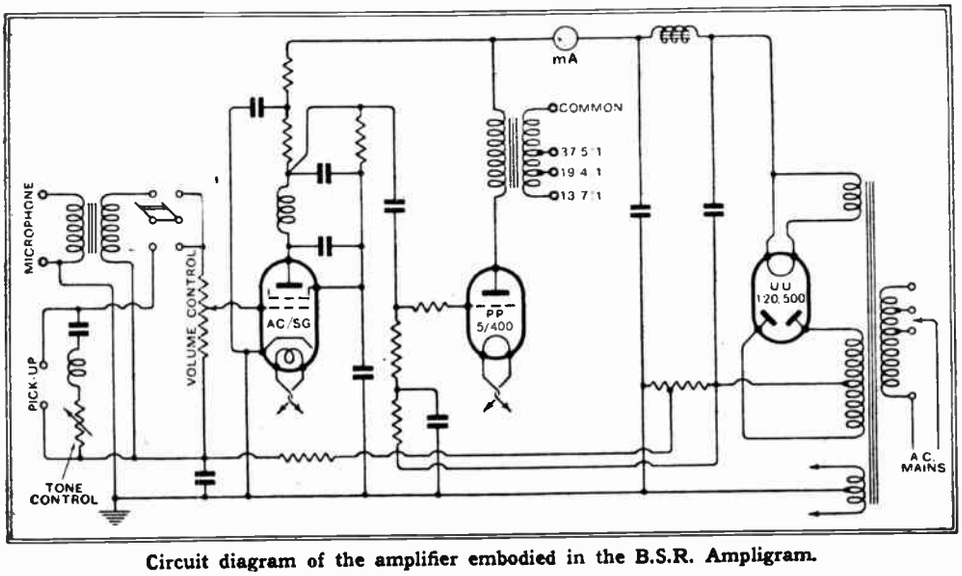
General. *— Portable electric gramophone entirely A.C. operated. Voltage range 190-250 at 50 cycles. Undistorted output 5.9 watts. One model has provision for microphone.*

Circuit.—*Screen-grid valve employed in first amplifying stage, resistance-capacity coupled to PP5/400 power valve. Output matching transformer with three ratios to suit loud speakers of 2 ohms, 7.5 ohms and 15 ohms. H.T. by full-wave valve rectifier.*

Controls.—*Tone and volume controls.*

Price.—*Model AG1., £26 10s.*
Model AG2., £27 15s.

Makers.—*Birmingham Sound Reproducers, Ltd., Claremont Works, Claremont Street, Old Hill, Staffs.*



Circuit diagram of the amplifier embodied in the B.S.R. Ampligram.

BOOKS RECEIVED

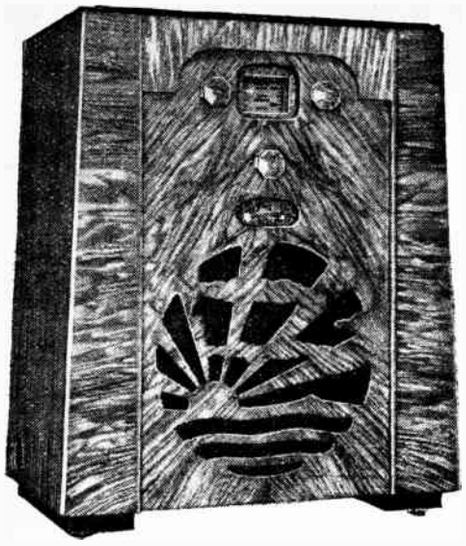
Radioactivity and Radioaction Substances (3rd Edition), by J. Chadwick, M.Sc., Ph.D. —Including the Nature of Radioactivity, Ionization of Gases, Methods of Measurements, The alpha, beta and gamma rays, Radioactive changes and substances, Production of Helium, etc. Pp. 116 xii, with 33 diagrams. Published by Sir Isaac Pitman & Sons, Ltd., London. Price 2s. 6d.

Alternating Current Electrical Engineering (4th Edition), by Philip Kemp, M.Sc. Tech., M.I.E.E., A.I.Mech.E., Mem.A.I.E.E.—Including General Considerations of Alternating E.M.F. and Current, Inductance, Reactance and Impedance, Capacitance and Condensers, Wave Form, Polyphase Currents, Alternaters, Transformers, Motors, Converters, Rectifiers, and Valves, etc. Pp. 595+xi, with 418 Diagrams and Illustrations. Published by Macmillan & Co., Ltd., London. Price 15s.

Un nuevo sistema para la impresión foto-eléctrica del sonido. By Alberto Laffon y Soto and Ezequiel de Selgas.—A description of a new method of recording sound on a cinematograph film. Pp. 21, and numerous diagrams. Published by Revista de Obras Publicas, Madrid.

Pye G/B Battery Receiver

A Three-stage Set with Q.P.P. Output



IN view of the extraordinary appeal exerted by the Q.P.P. principle recently, considerable interest naturally attaches to the first review of a commercial receiver which includes this system. That the new push-pull development has been well applied in the Pye G/B set is evident from the large volume of sound obtainable from the receiver, despite the use of a small high-tension battery only. Nor is it on volume alone that the set thoroughly satisfies; a moving-coil loud speaker is incorporated providing quality which justifies its use in a battery receiver.

The circuit contains those refinements which characterise Pye sets and which raise them well above the level of mediocrity. The aerial is tapped down the primary of the band-pass filter for both medium and long waves, and is joined to earth *via* a 25,000-ohm variable resistance. This component is ganged to the bias potentiometer, and the two together form a single volume control of adequate range. Too often it is left to the bias potentiometer alone to adjust the volume level, with the unfortunate result that signals from local stations can be reduced appreciably only by the unsound expedient of decreasing screening-grid volts.

Circuit Refinements

The anode circuit of the H.F. valve is decoupled by a 10,000-ohm resistance and a 0.25-mfd. by-pass condenser, and although battery filters are not used in the other stages, no signs of instability were evident. With Q.P.P. the fluctuating anode and auxiliary grid currents preclude the use of common impedances in the H.T. circuits of the output stage and decoupling must perforce be omitted. Parallel-feed is used for the L.F. transformer coupling so as to maintain a high primary inductance; furthermore, in this circuit the necessity for a special anti-surge resistance to protect the pentodes is avoided.

A point of interest is the values of the condenser components of the H.F. filter in the anode circuit of the detector, for, together with the choke, complete immunity from unwanted H.F. responses in the L.F. amplifier is ensured. With all push-pull circuits parasitic oscillations are liable to occur, but the usual separate grid stoppers are not effective with Q.P.P., and recourse must be had to a single resistance in the grid return circuit. This can be seen in the circuit diagram.

An impedance-limiting device across the primary of the output transformer is included, which has the effect of preventing undue shrillness of reproduction. That the resistance value is high, and the capacity value low, speaks well for the characteristics of the speech coil. Since the advent of Q.P.P. the electrical reproduction of gramophone records in battery receivers has come into its own, and represents, perhaps, one of the most important advantages of the new system of amplification. A pick-up can be used with the set under review, but an external volume control is necessary. There is an intermediate position on the wave-range switch marked "Gram.," which links the pick-up to the detector grid circuit, and at the same time short-circuits the input to the H.F. valve.

A simple but ingenious connection for an external loud speaker is arranged on the left side of the cabinet, but the details cannot easily be shown on the circuit diagram. A plug to which leads from the extra speaker should be connected is supplied with the receiver. When the plug is pushed half-way into the sockets both speakers will be in circuit, and when pushed right home the internal speaker is cut out of circuit and contact is made to the extra speaker only. It is important that the instrument chosen for use with extension leads should have a speech coil impedance from 1.5 to 2.5 ohms, which means that with many speakers on the market the built-in matching transformer must be cut out of circuit.

On testing the receiver one is at once struck by the tremendous volume from the two small pentodes, which together deliver no less than 1,000 milliwatts for a quiescent anode current of approximately 1.8 mA. per valve. On the score of quality, practically no adverse comment can be made. Individual instruments in an orchestra can be followed with ease, and harmonic distortion is not audible. The high-note output has been purposely curtailed, and the result is a pleasing immunity from heterodyne interference. Slight criticism might be levelled at a bass resonance, but this is hardly enough to be annoying. The selectivity reaches an entirely satisfactory standard, and close to Brookmans Park it was possible to receive a number of stations between the two local transmissions. The band-pass circuit fulfils its function admirably, giving a sharp cut-off on either side of resonance. The performance on long waves was exceptionally good, and reaction was not found to impair quality unless pressed to the limit.

Thanks to the attention paid by the designers to the tuning control, the identification of stations is made extremely simple. A large illuminated drum dial driving the three ganged condensers by means of a chain, provides an ample surface area on which are printed both wavelengths and principal broadcasting stations. So that there should be no confusion between the two wavebands, all data appertaining to the medium range are printed in black, and to the long waves in red.

To enable a thoroughly satisfactory servicing scheme to be carried out, the manufacturers have constructed the chassis so that it can be removed from the cabinet for examination or repair in a few moments, and every precaution has been taken against damage in transit by the inclusion of rubber buffers between the chassis and its container.

Altogether, the Pye G/B receiver must be considered a great advance in battery receivers, giving as it does an output which has hitherto been considered the prerogative of the mains user. The total average H.T. battery consumption is but 8.2 milliamps, and as matched Pen. 220 valves are supplied the consumer is not under the necessity of balancing the output stage.

FEATURES.

General.—*A self-contained 3-stage receiver (4 valves) for battery operation with Q.P.P. output. For use with external aerial and earth. Built-in permanent-magnet moving-coil speaker and provision for gramophone pick-up. Sockets for external speaker, which can be put in circuit with or without the internal speaker.*

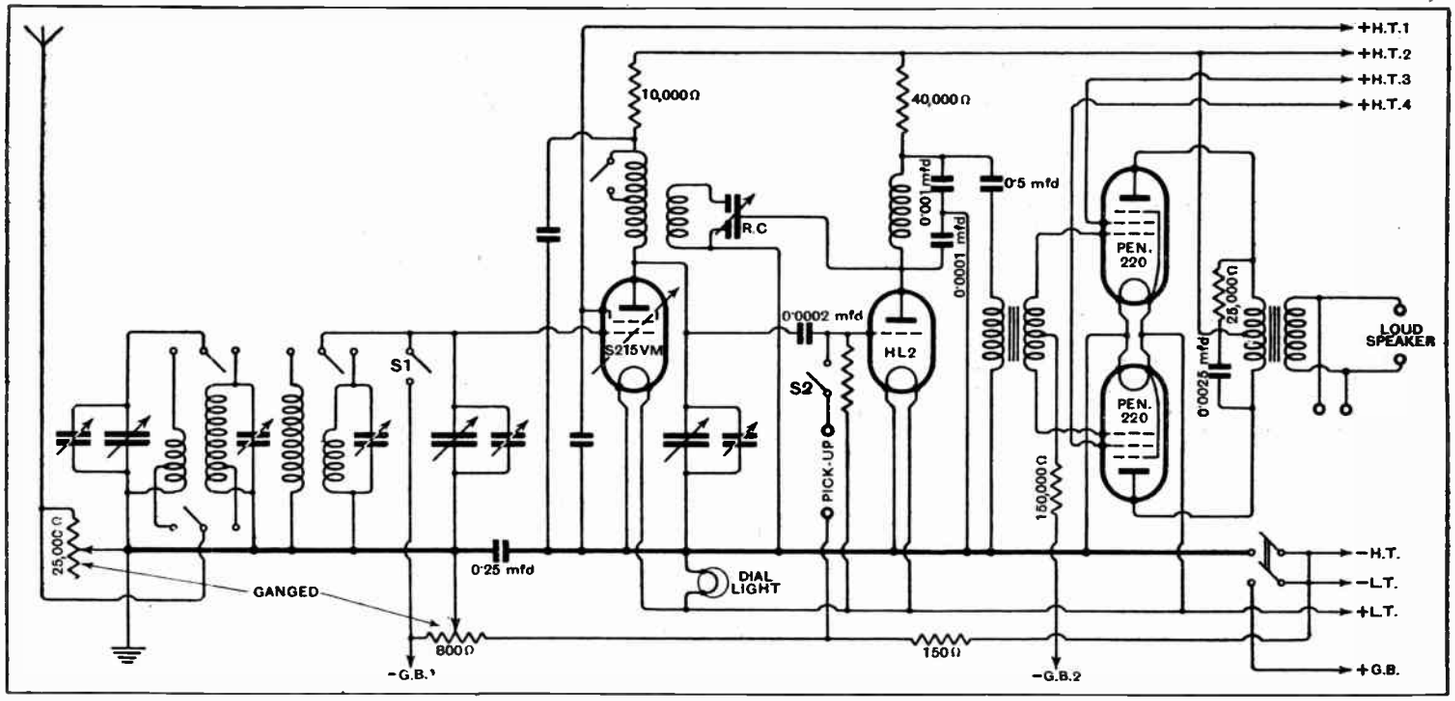
Circuit.—*Band-pass input circuit, variable-mu H.F. valve with dual volume control actuating aerial resistor and bias potentiometer. Tuned anode coupling with reaction. Parallel-fed push-pull L.F. transformer linked to two Pen. 220 valves in Q.P.P. giving 1,000 milliwatts undistorted output.*

Controls.—*(1) Ganged tuning with illuminated dial calibrated in stations and wavelengths. (2) Combined wave-range and radio-gramophone switch. (3) Reaction. (4) Volume (dual). (5) On-off battery switch.*

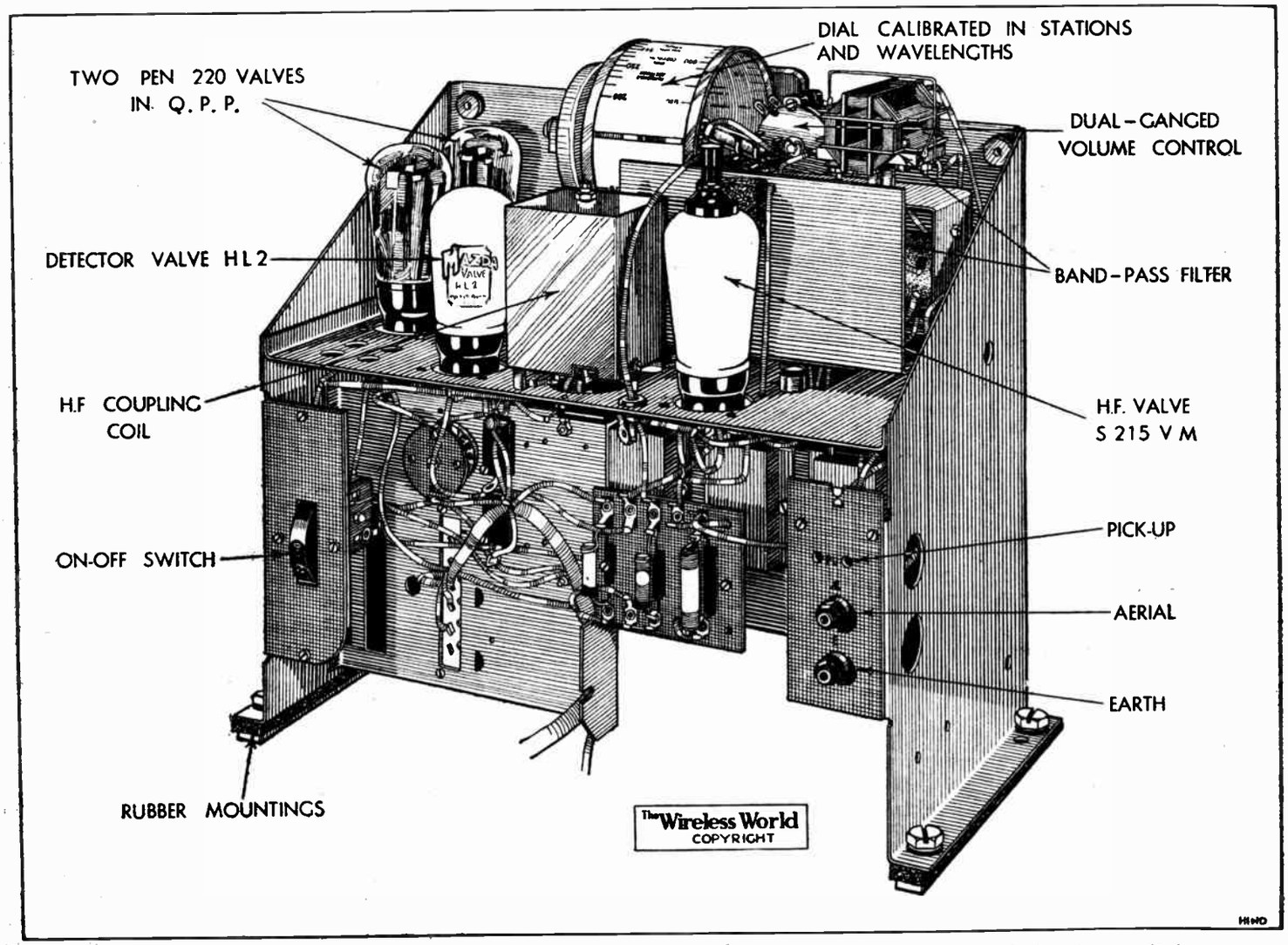
Price.—*11 Guineas complete.*

Makers.—*Pye Radio, Ltd., Africa House, Kingsway, London, W.C.2.*

Battery Receiver with Mains Output



Complete circuit diagram. Voltages and currents are as follows: Max H.T. volts 159; auxiliary-grid volts about 144; H.F. screening-grid volts 60; total H.T. consumption under working conditions 8.2 mA.



The receiver chassis which rests on rubber mountings. The large dimensions of the drum dial considerably assist the process of tuning.

READERS' PROBLEMS

THESE columns are reserved for the publication of matter of general interest arising out of problems submitted by our readers. Readers requiring an individual reply to their technical questions by post are referred to "The Wireless World" Information Bureau, of which brief particulars, with the fee charged, are to be found at the foot of this page.

Q.P.P. Amplification

IT should be emphasised that no resistance of high value—even remotely comparable with the resistance of the valves—should ever be included in the anode or auxiliary-grid circuits of a quiescent push-pull amplifier. Currents in these circuits are constantly changing under the influence of varying signal-frequency voltages applied to the grids, and anything which tends to restrict these changes is bound to introduce a loss of efficiency and distortion.

This rules out the use of potentiometers and voltage-dropping resistances for regulating anode and auxiliary-grid voltages. As has already been stated, the Q.P.P. amplifier is essentially for battery feed, and the difficulties in the way of adapting it for operation with an eliminator are considerable. In any case, this system of amplification loses most of its attractions when a source of ample anode current from the mains is available.

A.C. Filament Heating

A READER who has a power transformer with a 7.5-volt centre-tapped secondary asks whether this winding could be employed to supply filament current to an output valve requiring 2 amps. at 4 volts. Information is requested as to the value of the series resistance that will be necessary for absorbing surplus voltage, and also as to whether the centre tap should be connected in the usual way.

As the 7.5 volt winding will probably be designed to deliver about 2 amperes, it should be quite possible to use it for heating the output valve described. An extra series resistance of 1.75 ohms should be included in the filament circuit in the manner shown in Fig. 1.

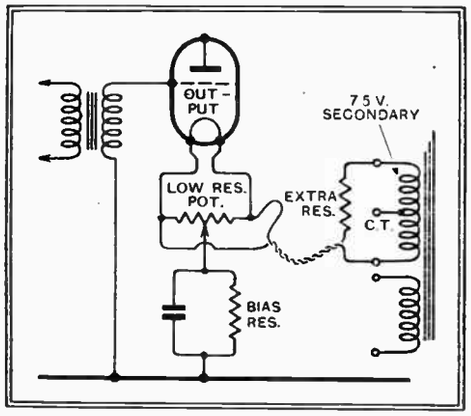


Fig. 1.—A typical output stage, with the addition of a resistance for absorbing excess filament voltage.

Under these conditions it will no longer be possible to employ the existing centre tap, but the same effect may be obtained by shunting the filament with a potentiometer of between 20 and 40 ohms; in this way an artificial centre point may be located.

Visual Indication

THE prospective constructor of a Station Finder, who does not believe in "spoiling the ship for a ha'porth of tar," asks our advice regarding the purchase of a detector anode current meter for use in conjunction with this device. It is intended that the instrument should be permanently wired as a part of the receiver, and should be used as an aid to identification by means of the Station Finder.

Meters are always worth while having, but the use of one is by no means essential to the success of the Station Finder. Indeed, with most sets having two L.F. stages, the change of anode current in the detector anode circuit which corresponds to the maximum required output is usually so small that it is difficult to detect visually. This means in practice that in order to obtain an indication it would be necessary to increase the sensitivity to a point where overloading becomes evident. This is unpleasant, and so the aural method is probably actually preferable in this case.

When, on the other hand, the detector feeds directly into the output valve, it will usually be found that the change in detector anode current under normal working conditions is quite appreciable, and so an anode current meter becomes more valuable.

Distant Control of Grid Bias

IT is rather surprising that advantage is not more often taken of the fact that the grid bias voltage—and consequently the sensitivity—of a variable-mu valve may be regulated from a point at a distance from the receiver itself. In this way remote control of volume is made possible in an extremely simple manner.

So far as A.C. valves are concerned, this matter has already been treated in the pages of *The Wireless World*. A correspondent, who realises that there is no basic reason why battery-fed valves of the same type should not be controlled from a distance, asks us to publish a circuit diagram showing how the potentiometer at the remote point should be connected to the receiver.

In actual fact the connections of this potentiometer need be no different from those applicable if it were included in the receiver, but to make the matter clear, a diagram showing the connections of extension leads is given in Fig. 2.

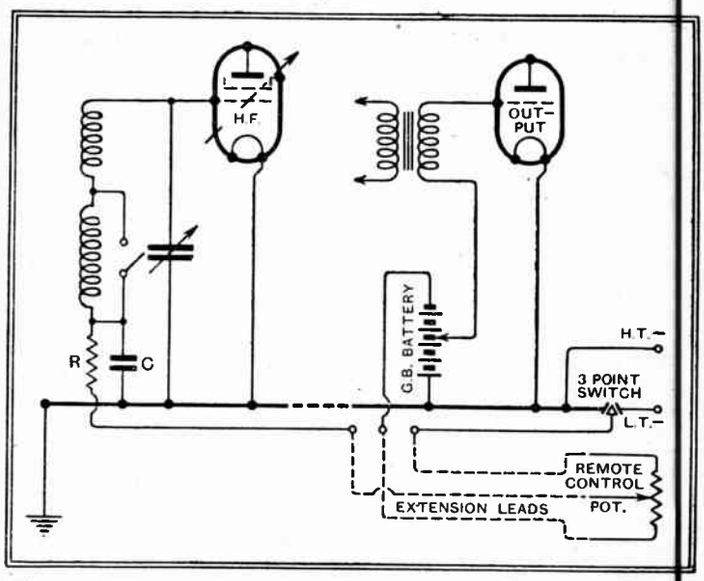


Fig. 2.—Remote volume control by variation of grid bias: connections of extension leads to the potentiometer.

As the extension leads are at low potential, so far as signal-frequency currents are concerned, the fact that they are extended to a distance should not affect stability adversely. As a rule, the amount of decoupling normally included in the H.F. valve grid circuit will be sufficient to prevent undesirable effects.

The All-Wave Monodial

IN order that the "All-Wave Monodial" (*Wireless World*, Jan. 27th and Feb. 10th) may be economical in the matter of anode current consumption, a maximum H.T. voltage of 100 volts was specified for all valves. When a source of ample H.T. current is available, there is no reason why the voltage applied to the anodes of the second detector and pentode output valve (and screen) should not be increased to the full 150 volts at which these valves are rated. The earlier valves in the receiver, however, should be worked under conditions laid down in the original descriptive articles.

Several readers who have written to us on this subject propose to feed the "All-Wave Monodial" from an eliminator; there is no objection to this course, and as a rule it will be unnecessary to include any extra decoupling beyond that provided in the original design. Of course, the eliminator must include provision for reasonably accurate adjustment of the various output voltages.

The Wireless World INFORMATION BUREAU

THE service is intended primarily for readers meeting with difficulties in the construction, adjustment, operation, or maintenance of wireless receivers described in *The Wireless World*, or those of commercial design which from time to time are reviewed in the pages of *The Wireless World*. Every endeavour will be made to deal with queries on all wireless matters, provided that they are of such a nature that they can be dealt with satisfactorily in a letter.

Communications should be addressed to *The Wireless World* Information Bureau, Dorset House, Tudor Street, E.C.4, and must be accompanied by a remittance of 5s. to cover the cost of the service. The enquirer's name and address should be written in block letters at the top of all communications.

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Capacity Mfd.	Type M. Moulded-in with Soldering Tags.		Type 34. Upright with Terminals.		S.P. Type (Series-Parallel)	
	New	Old	New	Old	New	Old
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
.00005	0 8	1 0	1 3	1 6	—	—
.0001/3	0 8	1 0	1 3	1 6	2 0	2 4
.0004/5	0 9	1 0	1 3	1 6	2 0	2 4
.001/4	1 0	1 4	1 6	1 10	2 6	2 10
.005/6	1 6	1 9	2 0	2 6	3 0	3 6
.01	2 0	2 3	3 0	3 0	—	—

PAPER CONDENSERS. TERMINAL TYPES

Capacity Mfd.	Type 50/61 200 V. D.C. Working		Type 80/81 400 V. D.C. Working		Type 101 800 V. D.C. Working		Type 121 1,500 V. D.C. Working	
	New	Old	New	Old	New	Old	New	Old
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
0.1	—	—	2 0	2 3	—	—	—	—
0.25	—	—	2 4	2 9	—	—	—	—
0.5	2 4	2 7	2 6	3 0	5 0	6 3	7 0	8 0
1	2 6	2 10	3 0	3 9	6 0	7 6	8 6	10 0
2	3 6	3 10	4 0	5 0	9 0	10 0	13 0	15 2
3	5 0	5 3	6 0	7 6	—	—	—	—
4	5 6	6 3	7 0	8 6	17 6	19 2	25 0	28 6
5	7 3	8 0	9 0	10 6	22 0	24 6	31 0	35 0
6	8 6	9 0	10 6	12 0	25 0	28 6	37 6	42 0
8	11 0	11 9	14 0	15 0	—	—	—	—
10	14 0	14 6	17 6	18 0	—	—	—	—

PAPER CONDENSERS. SOLDERING TAG TYPES

Capacity Mfd.	Type 65 500 V. D.C. Test 250 V. D.C. Working		Type 84 750 V. D.C. Test 350 V. D.C. Working		Type 87 1,500 V. D.C. Test 450 V. D.C. Working	
	New	Old	New	Old	New	Old
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
0.1	1 8	1 9	2 0	2 0	2 2	2 3
0.25	1 10	1 11	2 2	2 4	2 4	2 6
0.5	1 11	2 0	2 4	2 8	2 6	2 10
1	2 0	2 3	2 9	3 3	3 0	3 8
2	2 8	3 0	3 9	4 6	4 0	4 9
3	—	—	—	—	—	—
4	5 0	5 0	6 9	7 6	7 3	8 0
5	—	—	—	—	—	—
6	7 0	7 9	10 0	10 9	—	—
8	9 0	9 6	13 0	14 0	—	—
10	11 6	12 6	16 0	16 6	—	—

ELECTROLYTIC CONDENSERS

Capacity Mfd.	Type 802. Aqueous 440 V. D.C. Working		Type 801. Aqueous 460 V. D.C. Working		Type 902. Dry 500 V. D.C. Working	
	New	Old	New	Old	New	Old
8	6 0	9 0	—	—	6 6	9 0
4	5 0	8 0	—	—	—	—
7	—	—	6 0	9 0	—	—

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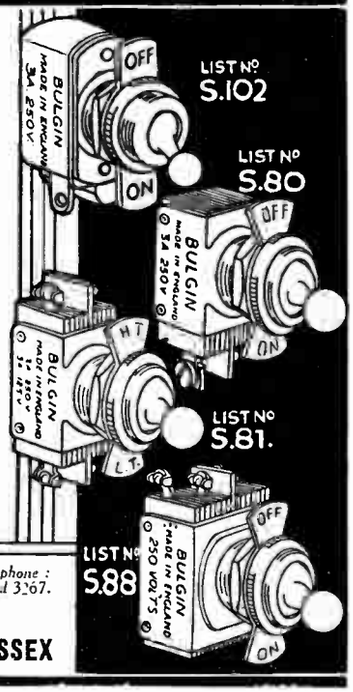

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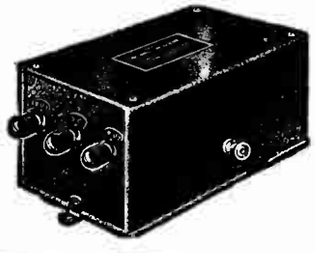

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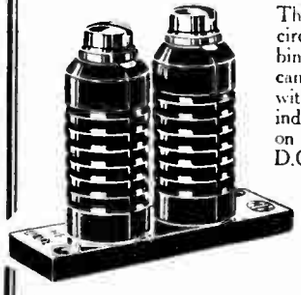

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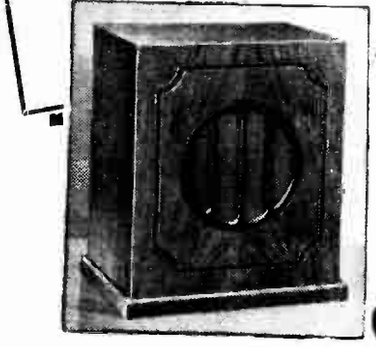

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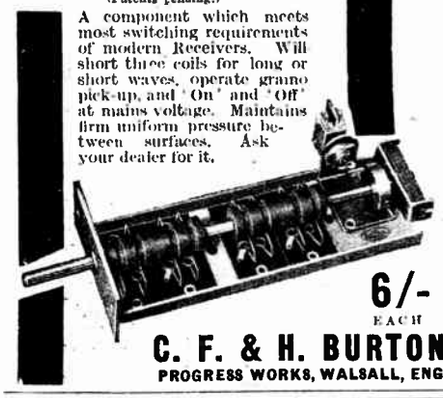

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RECEIVERS FOR SALE.

MACMICHAEL Dimic All-electric S.G.3. long, medium and short (15 m. to 100 m.) waves, as new; £7 10.—74, Old Oak Common Lane, East Acton, W.3. [1974

PYE K, latest model, 7 weeks old; £7/10.—Frost, Ashford (Middlesex), 372. [1973

KILODYNE Short-wave 4, cabinet, valves, Pentode, utility slow-motion dial; complete, £5.—Atkinson, 15, Balfour Rd., Acton. Acorn 1212. [1971

OSTAR GANZ Combined A.C. and D.C. Receiver, in modern walnut cabinet, with Rola M.C. loud-speaker, unboxed, list price £12/12, our price 2 valves £5; 3 valves £6/10; c.o.d., carriage paid; state voltage.—Kay, 167, City Rd., Finsbury, E.C.1. [1632

APPLEBY'S, Central London Office, 46, Bloomsbury St., New Oxford St., London, W.C.1. Museum 2195. [1833

LOTUS All-Mains Band-Pass Three, list 16 guineas, brand new, £9/5; Philips 1932 super-inductance Five, unused, £17; Amplion Six, £9/10; K.B. S.G. portable, £5.—Selby, 22, South End, Croydon. [2009

EDDYSTONE Kilodyne, 12-600 metres, new, cost £6 17/6, £4/10; also 3-valve short wave, £2.—290, Kennington Park Rd., S.E.11. [2005

LOTUS All-Electric Band-Pass Three, £16/16 model, variable Mu screened grid, detector, pentode, Westinghouse, Magnavox moving coil, single knob tuning, dial calibrated in wavelengths, veneered walnut cabinet, mains aerial, pick-up and extra speaker plugs, 30 stations full speaker strength, not 2 months old, as new, full guarantee; £9/15 cash.—Box 6209, c/o *The Wireless World*. [1999

"W.W." Short Wave Two, less valves, new; 55/-, or exchange.—St. Clare, Altwood Bailey, Maidenhead. [1987

"WIRELESS World" Single Dial Super, perfect condition; £5.—Box 6203, c/o *The Wireless World*. [1979

ULTRA Short Wave 6-valve Receiver, M.C. speaker, in walnut cabinet, new; £16.—Below.

4-VALVE A.C. Radiogram, 1933 model, Collaro electric motor, pick-up, Rola speaker, all in beautifully finished walnut cabinet, marvellous bargain, £14/14.—Below.

4-VALVE Receiver, M.C. speaker, gramo, mains aerial, wonderful range and tone, walnut cabinet, either A.C. or D.C.: £10/10.—Sanders, 12, Eastbourne Rd., Chiswick, W.4. [1983

"WIRELESS World" Super Selective Six, A.C., with speaker, less cabinet, as specified.—Barton, 18, Renfrew Rd., Kennington. [2016

CHARGERS AND ELIMINATORS.

TANTALUM for A.C. Chargers, H.T. and L.T.—Blackwell's Metallurgical Works, Ltd., Garston, Liverpool. [9346

TRICKLE Chargers, ½ amp., with Westinghouse Rectifiers, complete, 11/9; 1½ amp., 19/11; eliminators, 20 m.a., 34/6; particulars free.—Arden Agency, Wellaston, Wellingborough. [1818

7/6, A.C. battery charger kit; A.C. H.T. kit, 120v., 15 m.a., 25/-.—Frost Radio.

MAINS Transformers, from 6/6; chokes, 3/6.—Frost Radio Co., 21, Red Lion St., E.C.1. [2013

FIRST AGAIN!

"THE WIRELESS WORLD" THIS WEEK WITH THE FERROCART III A.C. RECEIVER!

YOU, SIR, may require one of these amazingly selective high quality Sets, but may be too busy to build it yourself—similarly, your friend may not be able to construct it himself and will come to you for advice on where he may obtain one fully assembled and tested—

SCOTT SESSIONS

provide such a service, and for £18-10-0 (or for 1st Deposit of £2-6-3) supply the FERROCART A.C. III built with first class workmanship, and *including all Valves and Royalty* and S.S. Mains Transformer and Choke.

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Chargers and Eliminators.—Contd.

SERADEX Radio Products.

FERROCART III Mains Transformer, as specified, stripped with flex leads, 16/9; terminal model, 19/6. See advert. on page 23.

SERADEX Speaker Field Replacement Choke, 2,500 ohms; 12/6.

SERADEX Special Pentode Output Choke, 35H, carry 35 m.a., tapped centre; 8/6.

SERADEX Resistors, set of 14 for Ferrocart III, 10/-. N.B.—This kit saves you 11/9, equal results to original guaranteed.

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SERADEX Resistances and Condensers; list now ready.

SERADEX Products are Obtainable from Your Dealer, or from makers, Trevor Pepper, 48, Wakegreen Rd., Birmingham. [1995

BROWN and SALTER, Vortexion, Wimbledon, for the finest transformers made regardless of price; all models guaranteed 12 months, tested on full load and 2,000 volts between windings before despatch; all finished in cast aluminium frames or shroudings.

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VORTEXION.—W11 for Westinghouse H.T.11, with 4v. 1-2, 4v. 1-6a., all C.T., shrouded; 40/-.

VORTEXION.—250-0-250, 60 m.a., 4v. 1-2, 4v. 2-4a., all C.T., open type tagged leads; 11/6.

(This advertisement continued on next page.)

Chargers and Eliminators.—Contd.

(This advertisement continued from previous page.)

VORTEXION.—350-0-350, 120 m.a., 4v. 2-5, 4v. 1-5, 4v. 2-4, all C.T., shrouded type tagged leads; 16/6.

VORTEXION.—400-0-400 or 450 or 500-0-500, 120 m.a., open types, 4v. 2·4a., 4v. 2·5a., 4v. 2-5a., all C.T.; 19/-; tagged leads.

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VORTEXION for Helsby Condensers, 750 D.C. working, 6 mfd.; 6/6, list price 21/6.

VORTEXION.—Transformers made to your specification.

VORTEXION.—Brown and Salter, 182, The Broadway, Wimbledon. Tel.: Liberty 2814. [2034

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39/6—Radio gramophone cabinet; 23/6, wireless cabinets; satisfaction guaranteed.—Barraclough, 9, Nelson St., Southend-on-Sea. [2031

RADIOGRAM Cabinet, cost £7/10 trade, as new; £5/10. —58, Felton St., Hoxton. [1991

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B.T.H. Senior Pick-up, Garrard double spring motor; lot £2; almost new.—Walker, Camelon Rd., Falkirk. [2021

H.M.V. Automatic Playing Desk, new, A.C.; £9/10.—130, Burns Av., Southall. [2003

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B.T.H. R.K. Moving Coil Speakers, guaranteed new, unused, manufacturers' surplus, original price 6 guineas.

HIGHLY Sensitive and Wonderful Tone Response; will handle up to 10 watts output; available for 6v., 100v., 200v., 30/-; also A.C. models, £2/10.

CARRIAGE Paid, c.o.d., or cash with order; send for list of other unused bargains.—Seekamp, 46, Farringdon St., London, E.C.4. [1425

R. & A. Challenger, 20/-, new; Lotus A.M.10 eliminator, £3, or offers.—Connor, 56, Western Rd., Leigh-on-Sea. [1972

EPOCH Domino for D.C. Mains, 1932 model; £4.—Yates, 87, High St., Dorking. [2024

18/9 snip.—W type P.M. moving coil speaker, reputable manufacturers' new surplus, modern and guaranteed; Magnet weighs over 4lb., cone 8½in. dia. overall, complete with tapped transformer; originally 49/6, most genuine bargain ever offered; cash with order, returnable within 7 days, carriage paid.—Streete, 84, Riversdale Rd., N.5. [2001

FERRANTI M1 Speaker, with O.P.M.6 output transformer, absolutely new; £5/19/6.—E. M. Thomson, A.M.Inst.B.E., Station Rd., Shotts. [1985

30/-!!—B.T.H. R.K. moving coil speakers, 6in. cone, new and unused, guaranteed; these speakers are type as used in cinema sound equipment; weight 30lb., and are vastly superior to cheap speakers now on the market, 100 volts, 150 volts, and 200 volts D.C.

27/6!!—6v. D.C. speaker, as above; £2/7/6, speaker as above, for 100-250 A.C.

CARRIAGE Paid, cash with order, or c.o.d.—Ward, 12, Tredegar Rd., Bow, E.3. [2006

BALANCED Pair Rolas, F7, F6 2,500 fields, with rectifier, £3/5; Lissen A.C. eliminator, 25/-.—Sutton, 24, Kent Gardens, West Ealing. [1988

PICTURE RECEIVER APPARATUS.

BAIRD Senior Kit, assembled and tested, as new; £6. —Thomson, Radio Engineer, Crieff. [1990

TRANSMITTERS.

BIRMINGHAM RADIO MART Specialises in Short Wave Gear; example: T.C.C. 4+4 mfd. 1,700 working; 25/- (G5N.L.).—19, John Bright St. [1982

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THE Following Valves are Guaranteed as New, and any valve differing from the makers' characteristics will be exchanged; all latest types.

A.C./Pen.s, A.C.S1/V.M.s, M.P.T.4s, D.C.2/Pen.s, D.C.2S.G./V.M.s, 11/-; M.S.4s, M.S.4Bs, A.C.S.G.s, S.4V.A.s, D.S.B.s, A.C.S.2s, D.C.2/S.G.s, 9/6.

M.L.4s, A.C.P.s, 41M.P.s, P.M.24s, 8/-; A.C.H.L.s, A.C.2/H.L.s, 354Vs, 41M.H.L.s, U.10s, U.U.60/250s, M.H.4s, 7/6; P.T.2s, V.S.2s, 215S.G.s, P.M.22As, 9/-; D.C.3H.L.s, 8/-.

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U.X.250s, 7 watts output, 16/-; 282M, mercury vapour rectifiers, 11/-; for quickest delivery send telegraph money order.

OVER 2,000 Valves are Always in Stock for Immediate Despatch; carriage paid, cash with order or c.o.d.—Ward, 12, Tredegar Rd., Bow, E.3. [2007

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HIGH VOLTAGE MAINS VALVES

These valves work direct off either A.C. or D.C. supply. No transformers or resistances required. Remarkably free from mains hum.

A.520. G.P.	17 6	E.G.50. 50 m.a. Half Wave	14 6
W.310. R.C.	17 6	E.G.100. 125 m.a. do.	15 6
U.920. L.F. Power	17 6	N.G.40. 40 m.a. Voltage Doubler	29 6
L.1525. Super Power	18 -	V.O.45. 45 m.a. Full Wave	42 -

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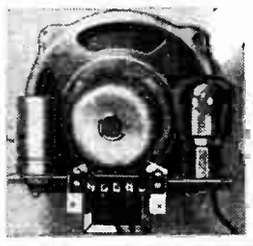
RECEIVER AND AMPLIFIER KITS



With British Components. Work off either A.C. or D.C.

2-v. Receiver with Rectifier - £6 10 0

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Latest type Energised Moving Coil Loud-speaker, complete with Ostar-Ganz Valves £2 5 0

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SPECIFIED BY SOUND SALES *THE EXPERTS*

First in every new development

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Speaker Field Replacement Choke

Specified First and Foremost in the "Wireless World"

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A.C. RECEIVER

Price **16/-**

Super Shielded type Mains Transformer to specification, **32/6.**

Write for full particulars of Sound Sales Range to:

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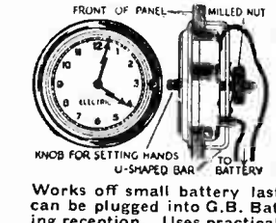

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WESTON Moving Coil Milliammeters (301), 0-5 upwards 22/6; Turner ditto, 17/6; Turner thermo couple ammeters, 0-1.5, 25/-; 3-range moving coil meters, 0-3 m.a., 6 and 120 volts, 22/6; electrostatic and moving coil voltmeters, 0-2,000, 32/6; moving coil milliammeters, 0-10 upwards, 10/6; alterations and repairs of every description.—The Victa Electrical Co., 47, High St., Battersea, S.W.11. [0355

CONDENSER Blocks 6d. per mfd., 650-volt test, in blocks of 6 mfd. upwards, wired in 2 mfd. units; 2 years' guarantee; send by return of post on 7 days' approval; cash with order.—Butlers Radio, Ltd., 191, Forest Rd., Walthamstow, E.17. 'Phone: 3134. [0396

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500-0-500v. 140 m.a., 4v. 2-4a., C.T., 4v. 2-6a., C.T., 4v. 2a., C.T., 4v. 2a., C.T., or 6v. windings if preferred; 27/6, post 1/3.

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LINE Transformers (auto wound), 0-100, 110, 200, 220, 240v., 60 watt, 7/9, post 1/-; 120 watt, 11/-, post 1/-; 180 watts 15/-, post 1/3.

CHOKES, 30h. 150 m.a., 12/-, post 1/-; 20h. 120 m.a., 8/6, post 9d.; 30h. 60 m.a., 6/-, post 6d.; 30h. 30 m.a., 3/6, post 6d.

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ILLUSTRA ENTERPRISES, 159, Wardour St., London, W.1. Tel.: 6889 Gerrard. [1621

FERRANTI Transformers, A.F.5c, 20/-; O.P.M.3C, 15/-; A.F.7, 17/6; Wearite Binowave v. coil, 7/6; valves, 2 each, Osram P.240, 6/6; Mullard P.M.12, 8/6; pair each Mullard P.M.1D.G., 12/6; Osram L.2B, 4/6; P.M.1, 5/6; Mazda H.L.210, 4/6; 215 S.G., 8/6; Wufa Speaker and chassis, 15/-; Converter D.C. to A.C., 200-240 volts input, 240 volts 90 watts output, Phantom type, £3, in good going condition; all above new condition; owner now using A.C.—Gould, 31, Muswell Hill, N.10. [2033

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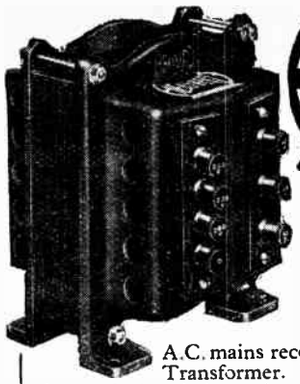
POLAR Tub Three, 9/6; 2 Igranic M16 metal rectifiers, new, 6v. 3a., 6/6 each; Colvern K61, 62, 61, ganged, 18/-, or 6/- each.—42, Huntington Rd., York. [2030



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SET Cabinets for 3v. A.C. Sets, room for speaker, suit "W.W." A.C.3, etc., brand new, fitted escutcheon, 20/-; used, 16/-.

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R. [1998

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RESISTANCES.—Erie, H.M.V., etc., our selection, 5,000 to 100,000 ohms, 3/- dozen; Dubilier and T.C.C. mica condensers, 3/- dozen; H.M.V. hum stoppers, C.T., 9d.; anode oscillation stoppers, 3d.

METERS.—British Flush, 2½in., nickel, any range above 20 m.a., 5/9; few Sifam M.C., 15/-; 2 m.a., 17 6.

CENTRALAB Dual Volume Control Radio and Pick-up, 3/6; logarithmic potentiometers, 6,000 and 10,000 wirewound, for Varimu, 2/-.

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RADIO MART'S Oddment Sale Now in Full Swing, hundreds of snips for callers.—19, John Bright St., Birmingham. [1980

FERRANTI A.F.5, 15/-; A.F.3, 10/-; O.P.M.1, 10/-; R.I. P.W. selector coil, 7/6. Cooke, 30, Church St., Enfield. [2020

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B.T.H. Gramophone Motors, 100-250 A.C. and D.C.; listed £6/6, complete 45/-.

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PREMIER Eliminators, input 200-250 A.C., output 150 volts at 30 milliamps, 2 lower taps, incorporating Westinghouse rectifier, with 4-volt 3-4 amp. L.T., 37/6; with trickle charger, 42/6.

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AMPLION Moving Coil Speakers, type E.M.644, dual fields, 2,500 and 5,000 ohms (100 or 200 volts), with multi ratio output transformer, 12/6; ditto, 200-250 A.C., 22/6.

PREMIER.—Mains transformers, all guaranteed, terminal connections, 200-250 input 40-100 cycles, output 135 volts at 80 m.a. for voltage doubling, 8/6; 4 volts 4 amps. C.T. low tension, 2/- extra; Westinghouse rectifier for above, 180v. 30 m.a., 8/6.

MAINS Transformers, primary 200-240 volts, secondary 350-0-350 volts at 90 milliamps., 4 volts at 3 amps. (C.T.), 4 volts at 2 amps. (C.T.), 12/6.

AMPLION Transformers, input 100-250 volts, output 350+350 volts, 120 milliamps., 4 volts at 5 amps., 4 volts at 2 amps., 6 volts at 1 amp., all centre tapped; 17/6.

MAINS Transformers, 12 volts 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps. and 4 volts 2 amps., 8/6; 14 volts 4 amps., 12/6; 4 volts 3 amps., 7/6; 4 volts 5 amps., 8/6; 22v. 1a., 10/-.

H.T.9 Transformer, 230 volts 200 milliamps., with 4 volts 4 amps. (C.T.) winding; 15/- (with screened primary).

H.T.8 Transformer, with 4 volts 3-5 amps. low tension C.T., 15/-; with Westinghouse H.T.8 rectifier, 25/- (with screened primary).

MAINS Transformers, output 250-0-250 volts at 60 milliamps., 4 volts at 1 amp., 4 volts at 2 amps., 4 volts 3-4 amps., all centre tapped; 15/- (with screened primary).

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T.C.C. Block Condensers, 250 volts working, 8+2+2+1+1 mfd., 5/6; 375 volts working, 6+4+2+2+2 mfd., 10/-.

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FERRANTI Condenser Blocks, 300 volts working, 4+4+2+2 mfd., 10/-; all entirely separate.

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PREMIER Eliminators, input 200-250 A.C., 40-100 cycles, output 250 volts at 60 milliamps., 80 volt and 120-volt taps, incorporating Westinghouse rectifier, 42/6; with 4 volts 4 amps. L.T., 7/6 extra.

PREMIER Eliminators, input 200-250 A.C., output 80, 100, and 120 volts at 20 milliamps, incorporating Westinghouse rectifier, 27/6; with L.T. charger incorporated, 35/-.

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(This advertisement continued in third column.)

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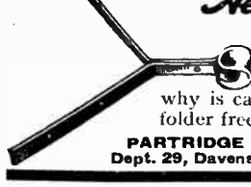

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Offer range of new meters, A.C. and D.C., moving iron and moving coil, Mansbridge condensers up to 750v. working, Mains transformers and chokes, Moulded 1 watt resistances, Wire wound resistances 1 watt to 5 watt, all at very low prices. See our Classified advertisement under Components for details and prices. All new goods. Fully guaranteed.

Components, etc., for Sale.—Contd.

(This advertisement continued from first column.)

SPECIAL Offer of Kolster Brandes Gramophone Motors (electric), all complete with turntables, list price £5; No. 1, super A.C. 100-250v., induction type, 35/-; No. 2, super universal 100-250 A.C. and D.C., £2; No. 3 clockwork motor, electrically wound, £2/5.

WIREWOUND Resistances, any value up to 10,000 ohms, carry 3 watts, 1/- each, listed 3/-; 6 watts 2/-; 12 watts 4/-.

CONDENSER Blocks, 3 separate 4 mfd. condensers, 400v. working, 8/6; with 2 separate 1 mfd. condensers, 2/- extra.

T.C.C. Condenser Blocks, 3+2+0.5+0.5 mfd., 250 volts working, 3/6.

WESTERN ELECTRIC Condensers, 250v. working, 1 mfd. 6d., 2 mfd. 1/-; 400v. working, 1 mfd., 1/-; 2 mfd. 2/-.

AMPLION High Inductance Chokes Resistance, 2,500 ohms, 80 henrys, 60 milliamps., 5/6.

SPECIAL Offer of Mains Transformers, manufacturers' type, any input, 250+250v. 60 m.a., 4v. 1a., C.T., 4v. 3a., C.T., 8/6; 180+180v. 40 m.a., 4v. 1a., 4v. 2a., 5/6; 175v. 50 m.a., 4v. 4a., 4v. 1a., 5/6; H.T.8, with 4v. 3/4a., 8/6; with rectifier, 18/6.

EKCO Microphones, complete with transformer, a really fine job, 18/6; wire-wound potentiometer, 50,000, 2/6.

S. G. BROWN'S Power Units, consisting of tapped mains transformer, Westinghouse rectifier, and T.C.C. electrolytic condenser, output 6v. 1 amp., for charging and energising; 21/-, listed £3 15.

WESTINGHOUSE Rectifiers, 120 volts at 20 m.a., 6/6; 180 volts at 30 m.a., 8/6; 8 volts at 0.5 amp., 6/6; 250v. 60 m.a., 10/-.

ALL the Following Lines 6d. Each, or 5/- dozen assorted: Trimming condensers; shielded S.G. or Pentode leads; Dubilier 0.01 condensers; 2ft. lengths of screened wire; 5-pin valve holders; Crabtree sunk 5-amp. switches.

ALL Orders to 20-22-24, High St., Clapham, S.W.4 (Macaulay 2188). Closed 1 o'clock Wednesday. Open till 9 o'clock Saturday. Nearest Station Clapham North Underground. [2032

PEPPER Offers the Following under Usual Money Back Guarantee; cash or c.o.d.

BATTERY Chargers, A.C. Ferranti, ½ amp., 22/6; Philips 3 amp., 14/6; Ekco 0.5 amp., 16/6; Oldham and Philips H.T. types, 16/6.

METERS.—Sifam 0-1 amp. moving coil, also in 30 m.a. and 50 m.a., 9/11; Ferranti 0 to 50 m.a., moving coil, new, 19/6.

ELIMINATOR Kits.—Heavy duty power pack, output 550 v. 120 m.a., with L.T. winding, complete with valve, chokes, condensers, etc, £3/5; ditto, output 350 v. 125 m.a., £2/7/6; many others in our sales list.

BRAND New 400 v. Working Condensers, 3 mfd., 2/6; 4×4×1 mfd., 5/11; 4×4×4×2 mfd., 9/6.

COILS.—Varley square peak, 7/9; see sales list for other offers.

MAINS Transformers from 5/-; few shop soiled Sheradex heavy duty chokes, 30 H, at 250 m.a., weight 10½lb., listed 35/-, 19/11.

8-PAGE List of Radio Bargains for Stamp, from Pepper, Wakegreen Rd., Birmingham. [1996

COLVERN K.B.L.C. and K.G.C. Coils, 4/6 each; Wearite Super Sixty coils, 19/6 the set.

R.I. Multi Ratio P.P Output Transformer, 10/6; Varley P.P. input transformer, 12/6.

ORMOND 0.0005 2-gang Screened Condenser, 7/6; single 0.0005 screened, 4/6.

MAZDA D.C. Pentode, 7/6; D.C./H.L., 4/6; D.C./S.G., 7/-; unused.

IGRANIC Metal Rectifier, M.16, 7.5v. at 3a., 10/-; transformer for same, 7/6.

SONOCHORDE Standard P.M. Speaker, with universal transformer; £1; unused.

J.B. Unitune 2-gang Condenser, fully screened, with disc drive; 10/6; unused.

ALL Above Goods Guaranteed Perfect, sent on 7 days' approval against cash, or c.o.d.; we will allow you 50% of the list price on your surplus goods in exchange for new. W. B. Mackie, 61, Dartmouth Rd., Forest Hill, S.E.23. 'Phone: Syd. 6741. [2017

CHAL-ELECTRIC Special Offers of Brand New Surplus, all carriage paid, cash with order, or c.o.d.

MOVING Coil Speakers.—Rolas (U.S.A.) S type, with multi ratio transformer, 7¾ cones, 90-130 volts, field resistance, 2,500 ohms, 200-250 volts, 6,500 ohms Res., 17/-each; A.C. models, 30/-; P.M. models, 26/-.

CONDENSER Banks, 1,500 D.C. Test, 20 mfd. (2), 4 mfd. (5), 2 mfd. (2), 1 mfd., 11/- each; 11 mfd. (1), 4 mfd. (3), 2 mfd. (1), 1 mfd., 6/9 each.

SMOOTHING Chokes. 20-henry 30 m.a. (570 ohms), 6/-; 30-henry 60 m.a. (600 ohms), 7/- each; 50-henry 60 m.a. (850 ohms), 8/6 each; 20-henry 120 m.a. (320 ohms), 9/3 each.

VARIABLE Condensers, 3-gang J.B. Nu-Gang, fully screened, with trimmers, escutcheon, light, etc., 14/6; 2-gang, as above, 10/6.—Chal-Electric, 6, Conduit St., London, W.1. [2011

MAINS RADIO'S Usual Guaranteed Set Manufacturers' Surplus, as new, all carriage paid, or call.

VALVES.—Special offer V.D.S. (metallised), 8/9; S4V.A. (metallised), 7/9; M.S.4B (metallised), 7/9; M.H.4, 6/3.

REGENTONE 2-valve A.C. set, with valves, perfect, list £6/15, £2/18/6; Ekco 5-pin valve holders, 5d. each, 4/- dozen; Magnum screened switched H.F. coils, 2/3; ditto band pass coil, 2/3.

SCREENED Single Wire (for heaters), etc., 10ft. coils, 9d. each.—Mains Radio Development Co., 4-6, Muswell Hill Rd., N.6. [1981

The Wireless World A.C.

FERROCART III

Complete kit of parts (less valves and cabinet) for this remarkable new receiver

£12-10-0

Supplied on convenient easy payment terms. **20/-** with order and 11 monthly payments of **23/-**.

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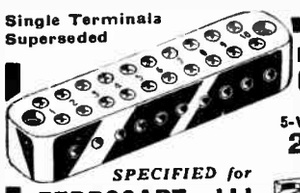

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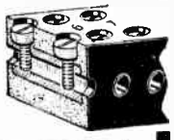

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YORK WORKS, BROWNING ST., S.E.17

Components, etc., for Sale.—Contd.

SOUTHERN RADIO'S Guaranteed Wireless Bargains.—Mains transformers, fully tapped, primary 200-250v. 50 cycles, centre tapped L.T., 250-0-250, 60 m.a., 4 volts, 1 amps., 4 volts 3 amps., 10/3, carriage paid; 350-0-350, 60 m.a., 4 volts 2 amps., 4 volts 4 amps., 12/3, carriage paid; 350-0-350, 120 m.a., 4 volts 1 amp., 4 volts 2 amps., 4 volts 4 amps., 16/9, carriage paid; 450-0-450, 120 m.a., 4 volts 2·5 amps., 4 volts 4 amps., 4 volts 2 amps., 18/9, carriage paid; 500-0-500, 120 m.a., 4 volts 5 amps., 20/-, carriage paid.

TRANSFORMERS for Westinghouse Rectifiers, H.T.4, 5, 6, or 7, 12/-, carriage paid; H.T.8 or 9, 13/9, carriage paid.

SMOOTHING Chokes, 40 henries, 40 m.a., 700 ohms, 6/-, carriage paid; 20 henries 60 m.a., 480 ohms, 7/-, carriage paid; 15 henries, 100 m.a., 330 ohms, 8/-, carriage paid; 20 henries, 120 m.a., 270 ohms, 8/6, carriage paid; special transformers and chokes quoted for and delivery given within 3 days from receipt of order; all guaranteed for 12 months, and carriage paid.

SET Manufacturer's New Surplus.—Ready Radio Meteor 3-valve screen grid battery kits, new, in sealed cartons, 27/6, less valves; with 3 Mullard valves (P.M.12, P.M.2D.X., P.M.2), £2/10/6 (listed £5/7/6); Ready Radio 303 3-valve battery kits, new, in sealed cartons, 21/-, less valves; with 3 Mullard valves (P.M.2D.X., P.M.2, P.M.1L.F.), 39/- (listed £3/10); Mullard Radio for Million A.C. 3-valve kits, in sealed cartons, including 3 Mullard valves (P.E.N.4V., 354V., S.4V.), £3/12/6 (listed £6/10); 3 valve battery sets, complete with valves, batteries, accumulator, incorporating Columbia speaker, contained in fine dome shaped cabinet, £2 each, in original cartons (listed £5/19/6); Radiophone volume controls and switch combined, 50,000 ohms, 3/9 each (listed 10/6); H.M.V. volume controls, 3/- each; dual gang variable condensers, H.M.V., 0.0005, with trimmers and shrouded, 6/- each (listed 29/6); screened chokes, H.M.V., 1/- each, 9/- dozen; condensers, 4 mfd., 2/6; 2 mfd., 1/9; 1 mfd., 1/1 each, all 750 volt test; block condensers, 10 mfd. (2+2+2+1+1), 1,500 volt test, 6/6 each; all goods guaranteed and carriage paid.—Southern Radio, 323, Euston Rd., London, N.W.1 (near Warren St. Tube). 'Phone: Museum 6324. [1994

BRITISH Radiophone Radiopak, latest, with gramo. switch, 45/-; Ferranti A.F.5C, 10/-.—Bryant, 2, Southfield Ridgway Place, Wimbledon. [1992

PUBLIC Address, Western Electric Type 555W unit, £8; F1 type, L.S.5 unit, new, £4/15.

TWO Phillips Searchlight Pattern 250-watt Speakers, approximate weight 20 lbs. each, complete with Parnecko matched transformer, £18 lot.

60-WATT A.C. Amplifier, complete with valves, excellent quality, £18; M-L converter 12v input, 230 A.C., 80 watts output, type L.F.H., £4, new.—Farrington, 14, London Rd., Rainham, Kent. [2026

COMPLETE Kit of Parts, including Valves for Super Sixty (battery model), £5/10; also Regentone De Luxe D.C. eliminator, as new, £2/10.—Yates, 87, High St., Ilerking. [2025

R.I. Pentomite Choke, 5/-; T.C.C. 2,000 mfd. Electrolytic, 4/-; B.T.H. 2:1 transformer, 1/9; A.C./H.L.s, A.C./2H.L.s, 5/- plus postage.—Tomlinson, Deansgrove, Haslingden. [2022

NEWTH'S Offer Brand New Set Manufacturers' Surplus.

MAINS Transformers.—Note these are not the type now being sold off at junk prices, but manufacturers' current lines, guaranteed 12 months, all tapped and screened primaries, L.T. windings, C.T., 500-0-500 at 120 m.a., 22/-; 450-0-450 at 120 m.a., 21/-; 350-0-350 at 120 m.a., 21/-; all above have following L.T. windings, 4v. 2.5a., 4v. 5a., 4v. 2a.; specials to "W.W." specification, straight (5) 400-0-400 at 120 m.a., 4v. 6a., 4v. 3.5a., 4v. 2a., 27/-; "W.W." quality amplifier, 400-0-400 at 120 m.a., 4v. 3a., 4v. 2a., 4v. 1a., 24/-; 350-0-350 at 60 m.a., 4v. 2.5a., 4v. 3a., 12/- (extra 1 amp. tapping), 14/-; 325-0-325 at 80 m.a., 4v. 2.5a., 4v. 4a., 12/-; 250-0-250 at 60 m.a., 4v. 1a., 4v. 1a., 4v. 3a., 12/6.

SMOOTHING Chokes, 20-henry 30 m.a. (550 ohms), 6/-; 30-henry 60 m.a. (550 ohms), 7/-; 50 henry 60 m.a. (800 ohms), 8/6; 20-henry 120 m.a. (325 ohms), 9/3.

CONDENSERS.—G.E.C. 750 test, 1 mfd., 1/1; 2 mfd., 1/9; 4 mfd., 2/6; 1,500 test, 1 mfd., 1/8; 2 mfd., 2/4; 4 mfd., 4/-; multiple blocks, 1,500 test, 4+4, 2+2+2+2+1+1, 11/- each; 11 mfd., 4+2+2+2+1, 6/9 each (separate tappings).

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GRAMOPHONE Motors and Pick-up combined, Collaro; £3, with automatic stopping device (2 only).

SPEECH Transformers, 17½ and 35-1 (combined), 5/-; 70-1, 6/6.

RESISTANCES and Grid Leaks (1) 10,000 (2) 100,000 (2) 0.25 meg. (1) 0.1 meg. (1) 2 meg., sealed packets, 2/- lot; Erie resistors, limited number only, every value, 6d. each (state requirements).

H.F. Screened Chokes.—H.M.V. 50/60 m.a., 100,000 microhenries; 1/- each.

VALVES (few only).—U.12, B.U.442, M.P.T.4; 10/- each.

PARAFEED Transformers, R.I., shrouded, 6/-; manufacturers' type, 2/6.

RECEIVERS.—Faraday all-wave 13-2,000 meters, in cabinet, and M.C. speaker, list 27 guineas, £17; Melva battery, transportable, walnut (3 S.G. det. and pentode), list 42 guineas (used demonstrations only), £9.

VARIABLE Condensers, 3-gang, J.B. Nu-Gang, fully screened trimmers, Escutcheon plates, light, etc., 14/6; H.M.V. 2-gang semi screened, with trimmers, 6/-.

MOVING Coil Speakers.—Rola's (U.S.A.) (8) type, 6-10 volts, 110-175 volts (2,000 ohms), 90-130 volts (2,500 ohms), 150-200 volts (4,700 ohms), 200-250 volts (6,500 ohms), all complete, with multi ratio transformer, 17/- each; A.C. models, 30/-; P.M., 27/-; dual compensated, any 2 energised on baffle (wired), 36/-; any one energised and 1 P.M., 40/-; Phillips P.M. (12 only), 8½ cone, multi ratio transformers, list 45/-, 28/-; all carriage paid; cash with order or c.o.d.—Newth's, Mayfair Radio, 31, George St., Hanover Square, London, W.1. Mayfair 5346. [2012

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Components, etc., for Sale.—Contd.

SALE, L.S.5A, 8/-; Pye chokes, 32 henries, 6/-; wanted, V.M.S.4, C.14, P.P.5/400.—Henshaw, 9, Bromwood Park, Mold, Flintshire. [2018

BRITISH Radiophone 3-gang Condenser, with cover, unused; 18/6.—Wilson, 62, Pellerin Rd., N.16. [2019

FERRANTI Transformers, A.F.3, 9/11 each; O.P.M.2, 13/6; A.F.5, 12/-.—Mackay, Station Rd., Corstorphine, Edinburgh. [2015

FARRAND Inductor Speakers green type, new and boxed, 35/-; Rola K D.C. moving-coil speaker, 2,500 ohm field, fitted with pentode transformer, new and unused, 16/-.

BLOCK Condensers, T.C.C. 250 volts working, new and perfect, 2+2+2+1+1, separate earth connection, 2/-; 4+4+2+1, separately earthed, 2/3; 2+2+2+2+1+1, 2 earth connections, 2/3; 5 2 mfd sections and 6 1 mfd. sections, 4 earth tags, 3/6.

ETA American Base Mains, screened grid valves, type 624; 6/- each; all brand new.

UTILITY Mite Drum Dials, with 0.0005 condenser, new and boxed; 2/6.

UTILITY 2-gang Condenser Air Spaced Type, with external trimmer for front section, 0.0005 each half, new and boxed, 10/6; T.C.C. wet electrolytic condensers, 440 volts working, 8 mfd., 3/6, brand new.

SMOOTHING Chokes, wound on a massive core, 1,500 ohms, 30 henries, 30 milliamps, 4/6; 750 ohms, 30 henries, 20 milliamps., 3/6.

LOEWE Vacuum Type Grid Leaks, resistances, and condensers, 3d. each, 2/- per dozen; 10,000, 15,000, and 25,000, 2 meg., 0.0003 and 0.005.

T.C.C. Type 65 Condensers, 250 volts working, 1 mfd., new and unused; 1/- each.

MAINS Transformers, extra heavy quality and fully guaranteed, 100-240 volts input, outputs 350-0-350 volts, 100 milliamps., 4 volts 4 amps. C.T., 4 volts 2·3 amps., type No. 2, 350-0-350 volts 60 milliamps., 4 volts 4 amps. C.T., 4 volts 2·3 amps. C.T., 10/6 each; manufacturer's type, with all leads marked.

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EASY Payments.—We supply, by easy payments, components, accessories, and sets, any make; 10% down, balance spread over 11 months.—Send list of requirements to London Radio Supply Co., 11, Oat Lane, London, E.C.2. [0337

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PATENT AGENTS.

PATENTS and Trade Marks, British and foreign.—Gee and Co. (H. T. P. Gee, Member R.S.G.B. and A.M.I.R.E.), 51-52, Chancery Lane, London, W.C.2. 'Phone: Holborn 1525. [0001

KING'S PATENT AGENCY, Ltd., 146a, Queen Victoria St., London, E.C.4. 'Phone: Central 0682. 45 years' experience. Advice Handbook free. [0381

A. MATHISEN, B.Sc. (Elect. Eng.), specialist, patents for radio inventions.—First Avenue House, High Holborn, London. [1832

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REPAIRS to Loud-speakers, transformers and headphones, 4/- each; Blue Spots or Wufa's, 5/-; mains eliminators, etc., quoted for; prompt service; satisfaction guaranteed; terms to trade.—Loud-Speaker Repair Works, 2, Shipka Rd., Balham London. Streatham 6618. [0394

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WIRELESS Sets Modernised, repaired, overhauled.—Write Woodward, 47, Whitehall Park Rd., Chiswick. [1989

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Repairs.—Contd.

LOUD-SPEAKERS, headphones, any type, rewound and overhauled, 3/6; Blue Spots, 4/-; post free; 24 hours' service guaranteed; terms to trade.—Devon Radio and Loud-speaker Repair Depot, Salem St., Plymouth. [1910

ELECTRIC CLOCKS.

MAINS Synchronous Clock Movements, 50 cycles, 200-240 volts, 12 6 each, 135/- dozen; no hands or dials.—Lincoln Electric Clock Co., 155a, Burnt Ash Hill, S.E.12. [2029

EXCHANGE.

COSMIC RADIO SERVICE, 23, Water St., Liverpool, accept high class components, receivers, and speakers in part exchange or for cash; no small parts or obsolete coils. [1976

FINANCIAL PARTNERSHIPS.

LEADING Public Address Publicity Experts' Radio Sales and P.A. Coach Hire Firm. Now forming a private company owing to the death of partner. Require two young men as directors, experienced radio engineer, and sales or business qualification, £250; company having contracts with national newspapers and public company's assets £2,000 business and bankers references exchanged.—Box 6213, c/o *The Wireless World*. [2027

WANTED.

NEW or Second-hand Wireless Parts Wanted for Cash, any amount, any condition; send yours, stating reasonable price; cash by return; top prices paid for 1932 parts; also meters, etc.; will call London districts.—Mildmay Radio Exchange, 24, Mildmay Grove, London, N.1. [1637

WANTED, Amplion M.C.6 Unit.—Write, Headon, 7, Allan Way, London, W.3. [2025

WANTED, all types of A.C., D.C., and battery valves; also A.C. and D.C. receivers, and any other components in quantities for spot cash.—Ward, 12, Tredegar Rd., Bow, E.3. [2009

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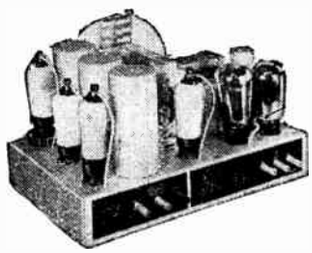

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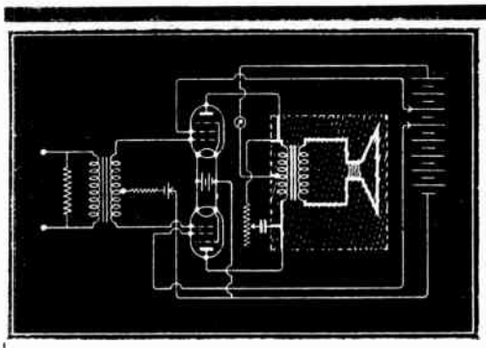

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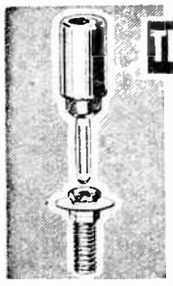

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INDEX TO ADVERTISEMENTS.

	PAGE
Alton Battery Co., Ltd.	
Apollo Gramophone Co., Ltd.	6
Atwater Kent (G. A. Brittain, Ltd.) ..	Inside Front Cover
Automatic Coil Winder & Elec. Equipment Co., Ltd.	23
Baker's "Selhurst" Radio	24
Barker & Colman, Ltd.	
Belling & Lee, Ltd.	
Black, Alexander	24
Britannia Batteries, Ltd.	vi.
British Institute of Eng. Technology	22
British Pix Co., Ltd.	v.
British Radiophone Co., Ltd.	5 & 11
British Reda Co., Ltd.	v.
Bryce, W. Andrew, & Co.	6
Bulgin, A. F., & Co., Ltd.	18
Burton, C. F., & H.	19
Carrington Manf. Co., Ltd.	18
Challis, O. M.	4
Columbia Gramophone Co., Ltd.	1
Colvern, Ltd.	12
Cossor, A. C., Ltd.	26
Cressall Manfg. Co., Ltd.	22
Direct Radio, Ltd.	15
Dubilier Condenser Co. (1925), Ltd.	Front Cover
Edison Swan Electric Co., Ltd.	7
Electradix Radios	20
Electrical Trading Association, Ltd.	2
Epoch Radio Manf. Co., Ltd.	22
Exide & Drydex	3
Faire Bros. & Co., Ltd.	4
Faraday All-Wave Wireless, Ltd.	25
Ferrno Co.	6
Gambrell Bros., Ltd.	18
General Electric Co., Ltd.	9
Goodmans	25
Graham Farish, Ltd.	14
Gripso Co.	22
Haynes Radio	16
Heigberd, F. C., & Co.	21
Heys, Leonard	24
Igranic Electric Co., Ltd.	21
Lever, Eric J. (Trix), Ltd.	21
Lisenin Wireless Co.	25
London Electric Wire Co. & Smiths, Ltd.	4
London Radio Supply Co.	23
Milnes Radio Co.	8
Multitone Electric Co., Ltd.	2
McMichael Radio, Ltd.	18
Osborn, Chas	25
Ostar-Ganz (Eugen Forbat)	20
Parima Manf. Co.	19
Partridge, Wilson & Co.	22
Partridge & Mee, Ltd.	Inside Front Cover
Pepper, Trevor (Seradex)	23
Peto-Scott Co., Ltd.	13
Picketts	22
Postlethwaite Bros.	
Radio-Gramophone Development Co. ..	Outside Back Cover
Radio Resistor Co.	21 & 24
Reproducers & Amplifiers, Ltd.	2
Rich & Bundy, Ltd.	
Riverside Manf. Co., Ltd.	20
Rotax, Ltd. (M.L. Equipment)	Front Cover
Rotor Electric, Ltd.	4
Ryalls Radio	22
Savage, W. Bryan	23
Scott Sessions & Co.	19
Sifam Electrical Instrument Co.	23
Smith, S., & Sons (Motor Accessories), Ltd.	6
Sonochorde Reproducers, Ltd.	Front Cover
Sound Sales, Ltd.	20
Telegraph Condenser Co., Ltd.	16 & 17
Telsen Electric Co., Ltd.	Front Cover
Turnadge & Partners, Ltd.	21
Varley (Oliver Pell Control, Ltd.)	15
Westinghouse Brake & Saxby Signal Co., Ltd.	Inside Back Cover
Wilburn and Co.	23
Wright and Weaire, Ltd.	8

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PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL Orchestral concert from Bournemouth. Symphony concert from Queen's Hall. Strange Music.

LONDON REGIONAL Vaudeville programme. Orchestral concert.

MIDLAND REGIONAL Choral concert. "Etc., Etc., One Inconsequential Thing After Another." feature programme.

NORTH REGIONAL "How Hollywood Goes to Work," Mrs. C. Gordon.

WEST REGIONAL Orchestral concert from the National Museum of Wales.

SCOTTISH REGIONAL "Free Wheel," a Scottish revue.

BELFAST Orchestral concert from Stranmillis.

ABROAD

ATHLONE 9.10 p.m. "The Coiner," a sketch by Mary Sheridan and Company.

BORDEAUX-LAFAYETTE (from Lille) 8.30 p.m. "Le Roi d'Ys," opera by Lalo.

BRUSSELS (No. 2) 8.30 p.m. Concert by the Royal Zoological Society, from Antwerp.

HAMBURG 6.30 p.m. Mozart Concert, by the Station Orchestra.

HUIZEN (announced Hilversum) 8.5 p.m. Leoncavallo concert, by the Station Orchestra and soloists.

PRAGUE 7.5 p.m. Concert by the Czech Philharmonic Orchestra and Choir, conducted by Prof. Jirak.

RADIO PARIS 9 p.m. Beethoven concert by the Lamoureux Concert Society, from the Salle Gaveau.

WARSAW 9.40 p.m. Talk in Esperanto on General Pilsudsky.

ATHLONE

413 metres; 60 kW.; and **CORK, 224.6 metres.**—**1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Popular Music on Gramophone Records. Music on Gramophone Records. **6.0, 6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** German Lesson. **8.0,** Concert by the St. James' Brass and Reed Band. Conductor: R. O'Dwyer. **9.0,** Tenor Solos by Joseph O'Neill. **9.10,** The Coiner—Sketch by Mary Sheridan and Company. **9.40,** Edith Kelly Lange's Instrumental Trio. **10.0,** Tenor Solos by Joseph O'Neill. **10.10,** Instrumental Trio Music (contd.). **10.30,** Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert: Selection from The Barber of Seville (Rossini); Diana (Letèbre); Selection from La Navarraise (Massenet); The Musical Box (Liadov); Italian Serenade (Holmes); Polonaise in F (Schubert). **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations. **8.0,** Light Music on Gramophone Records, followed by News Bulletin. **9.0,** Chimes from the Cathedral; Weather Forecast and Market Prices. **9.5,** Concert by the Station Orchestra. **10.0,** L'Istiuet de Sant Marti; Play in Three Acts in Catalan (Apeles Mestres). **11.0** (in an interval), News. **12.0 Midnight** (approx.), Close Down.

BARI

270 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes, Tourist Talk and Dopolavoro Announcements. **7.20,** Giornale Radio and News Bulletin. **7.30,** Time Signal and Announcements. **7.35** (approx.), Concert of Chamber Music: Overture, Gri-Gri (Lincke); Suite for Harpsichord (Arne-Gubitosi); Soprano Solos: (a) Fremiti (Giannini), (b) Nera Xerella (Gubitosi); Violin Solos: La fille aux cheveux de lin (Debussy-Hartmann), (b) Gavotte (Mozart-Auer); Soprano Solo: Soap Bubbles (Cesare Franco); Pianoforte Solos: (a) Prelude, Op. 116 (Gretchaninov), (b) Muzurka, Op. 116 (Gretchaninov); Overture, On the Rhine (Mario Mascagni); Violin Solos: Adagio and andante con moto (Casavola); Soprano Solo: Ninna nanna (Ottone Pesce); Pianoforte Solo: Clair de Lune (Debussy); Violin Solos: (a) Polichinelle (Kreisler), (b) Tambourin chinois (Kreisler); Soprano Solos: (a) Chi vuol comprar la bella calandrina (Tommelli), (b) Vergebliches Ständchen (Brahms); Pianoforte Solos: Two Pieces (Chopin), (a) Waltz, Op. 64, No. 2, (b) Etude in G Flat, Op. 10. In the Interval: Miscellaneous Announcements. **9.30,** Popular Music on Gramophone Records. **9.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

BEOGRAD, 430.4 metres; 2.8 kW.—**4.0 p.m.,** Medical Talk. **5.55,** Time and Programme Announcements. **6.0,** Talk. **6.30,** Popular Music on Gramophone Records. **7.0,** Song Recital by Beba Kapetanadzija. **7.30,** Programme relayed from **Zagreb (307 metres). 9.30,** News. **9.35,** Variety Music on Gramophone Records.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Classical Concert from **Berlin (Witzleben). 2.0,** Programme for Children. **2.30,** Weather and Exchange. **2.45,** Reading (Maxim Ziese). **3.0,** Talks on Health: (a) Vaccination, (b) Infectious Diseases. **3.30,** See **Hamburg. 4.10,** Talk: Modern Systems of Defence—Militia and a Standing Army—Switzerland and England. **4.30,** Legal Talk. **5.0,** Recital of German Student Songs, by Franz Baumann: Wir lugen hinaus in die sonnige Welt; Auf den Bergen die Burgen; Du buntes Band; Und Bonn!; Eine Mütze auf dem Schädel. **5.25,** Topical Talk. **5.40,** Talk on Wireless Technique. **5.55,** Weather and Announcements. **6.0,** English Language Lesson. **6.30,** A Poem. **6.35,** Programme from **Hamburg. 7.10,** Talk on the Winter Relief Fund. **7.15,** Programme to be announced. **9.0,** Weather, News and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Dance Music from **Berlin (Witzleben). 10.30,** Dance Music from the Kit-Cat Restaurant, **London. 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**6.0 p.m.,** Topical Talk. **6.15,** Recital of Folk Songs. **6.45,** Variety Programme. **7.35,** Announcement. **7.40,** Topical Talk. **7.55,** Concert by the Berlin Philharmonic Orchestra, conducted by Edwin Lindner: Overture, Oberon (Weber); Symphony in E Flat (Haydn); Scherzo for Orchestra, Masken im Karneval (Ferdinand Scherber). **9.0,** Weather, News, and Sports Notes, followed by Dance Music. **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—**7.30 p.m.,** News Bulletin and Market Prices. **7.40,** Dramatic Criticisms. **7.55,** Lottery Results. **8.0,** Agricultural Talk. **8.15,** News Bulletin. **8.30,** Le Roi d'Ys—Opera in Three Acts (Lalo).

BRATISLAVA

279 metres; 14 kW.—**5.0 p.m.,** Hungarian Programme: Talk on Masaryk, followed by Concert: Part I—Evening Songs (Smetana). Part II—Pianoforte Solos: (a) Variations in F Minor (Haydn), (b) Rondo capriccio in E, Op. 14 (Mendelssohn), (c) Valse lente (Debussy), (d) Arabesque, No. 1 (Debussy). **6.0,** See **Prague. 6.10,** See **Brno. 6.25** till Close Down, See **Prague. 9.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.**—**12.10 p.m.,** Gramophone Concert. Dance macabre (Saint-Saëns); Fifth Movement from the Fantastic Symphony (Berlioz); The Venusberg Scene from Tannhäuser (Wagner); Air from Der Freischütz (Weber); Dance of the Sylphs from The Damnation of Faust (Berlioz); In the Hall of the Mountain King, from Peer Gynt (Grieg). **12.45,** Time, Weather, News and Exchange. **1.5,** Gramophone Concert. Scherzo from A Midsummer Night's Dream (Mendelssohn); Air from Goyescas (Granados); Gilda's Aria from Rigoletto (Verdi); Rondo alla Aragonesa (Granados); Fandanguillo (Turina); Aria from The Merry Widow (Lehár); Five o'Clock Tea with the Kraus Family (Brown); Foxtrot, Let's put out the Lights (Hupfeld). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **3.0, Talk:** Shall we have Death Rays? **3.30,** Dafnis Lieder (Arno Holz), set to Music by Alfons Blümel. Song Recital by Albert Gaertner (Tenor): Er lässt nie sein Maul hängen; Er rastet mit seinen Gesöllen an einem schönen May Morgen in einem Birken-Hayn; Er bringt ihr ein Morgen-Ständchen; Er bereut nichts; er wünscht nur, dass ihm noch einmal der Frühling freut; Er sitt nacht hartem Winter von seiner letzten Streu; Er spürt ihn kommen; Er spricht noch aus dem Grabe. **4.0,** Reading (Rafael Urban). **4.25,** Market Prices. **4.30, Talk:** Training in Domestic Economy. **4.45, Talk:** Bishop Johann Michael Sailer and his Significance To-day. **5.5,** Orchestral Concert, conducted by Albin Eschrich. Entry of the Guests, from Tannhäuser (Wagner); Overture, Handel (E. Bach); Nachtmusik for Strings and Harp (Jokl); Hungarian Rhapsody in D (Liszt); Second Orchestral Suite from L'Arlésienne (Bizet). **6.35,** Weather for Farmers and Cattle Market Report. **6.40, Talk:** Hereditary Talents and the Choice of a Career. **7.0,** Humorous Programme by Gustav Jacoby, with Music by the Station Orchestra, conducted by Franz Marszalek. **7.50,** News. **8.0,** Film—Radio Play (Erik Ernst Schwabach), with Music by Allan Gray. **9.0,** Time, Weather, News, Sports Notes and Programme Announcements. **9.20, Talk:** A Tour through Marienburg Castle. **9.40,** Concert of Light Music and Dance Music by the Station Orchestra, conducted by Franz Marszalek, with Song Refrains by Hellmut Hallendorf (Tenor). **11.0** (approx.), Close Down.

BRNO

342 metres; 35 kW.—**4.10 p.m.,** Programme in Honour of President T. G. Masaryk. **5.5,** Review of Periodicals. **5.15,** Talk for Workers. **5.25,** German Transmission: News, Agricultural Talk, and a Talk for Workers. **6.0,** See **Prague. 6.10,** Talk on Radio Plays. **6.25,** A Choir Rehearsal. **6.55,** See **Prague. 9.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—**12 Noon,** Concert from the Menuline Hall, Antwerp. **1.0 p.m.,** Le Journal Parlé. **1.10,** Orchestral Concert conducted by M. Leemans; Overture: Figaro (Mozart); Waltz (Rachmaninov); Violin Solo: Caprice viennois (Kreisler); Selection from The Daughter of the Regiment (Donizetti); Moorish Song (Turina); La Burgonde (Vidal); Selection from Le Comte Obligado (Moretti). **5.0,** Chamber Music: Concert by the Little Radio Orchestra conducted by M. Leemans; Sonate à quatre, in B Minor, for Violin, Viola, Cello and Pianoforte (Locillet); Sonata for Violin and Pianoforte (Leken); Märchenerzählungen, for Clarinet, Viola, and Pianoforte (Schumann). **6.0,** Talk: Literature for Children Abroad. **6.15,** Die schöne Müllerin; Song Cycle (Schubert), on Gramophone Records. **6.30,** Songs for Male Voice Choir (Benoit). **7.0,** Die schöne Müllerin (contd.). **7.15,** Talk: The Financial Committee of the League of Nations. **7.30,** Medical Review. **8.0,** Concert by the Radio Symphony Orchestra conducted by Rhené Baton; Overture: Benvenuto Cellini (Berlioz); Symphony (Franck). **8.45,** Criticisms, Suggestions and Answers to Correspondence. **9.0,** Concert (contd.), Prélude à l'après-midi d'un faune (Debussy); Pour les funérailles d'un marin breton (Rhené Baton); Two South American Sketches (de Bourguignon); L'apprenti sorcier (Dukas). **9.40,** Gramophone Records of Light Music. **10.0,** Le Journal Parlé. **10.10,** Orchestral Concert from the Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R.; 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Heimkehre aus der Fremde (Mendelssohn); Romance (Tchaikovsky); Intermezzo from Le pavillon d'Armide (Tcherepnin); Scene and Waltz from Gretna Green (Guiraud); Promenade matinale (Van Hoof); Minuet (Pallemaerts); Suite, Jeux d'enfants (Bizet); Melody (Silésu); Russian Potpourri, Saschinka (Ralf). **1.0,** Le Journal Parlé. **1.10,** Concert by the Paul Moreaux Orchestra, relayed from the Menuline Hall, Antwerp. **5.0,** Dance Music relayed from the St. Sauveur Palais de Danse. **6.15,** Talk. **6.30,** Talk on Peter Benoit's Romantic Oratorio, De Schelde, with Musical Illustrations. **7.0,** Danzas fantasticas (Turina), on Gramophone Records. **7.15,** Talk: The Russian Carpathians. **7.30,** Theatre Notes. **8.0,** Pianoforte Recital of Peter Benoit's Music by Alice Peeters: Ballad in F Minor; Conte in D Minor; Fantasia No. 4. **8.15, Reading:** Reminiscences of Peter Benoit. **8.30,** Concert by the Royal Zoological Society, relayed from **Antwerp. 10.0,** Le Journal Parlé. **10.10,** Dance Music on Gramophone Records. **11.0** (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—**4.0 p.m.,** Concert by the Radio Orchestra. **5.0,** News and Time Signal. **5.10,** Talk. **5.25,** Concert (contd.). **6.0,** Talk on Romania: Her Wood and Paper Industries. **6.40,** Popular Music on Gramophone Records. **7.0,** Flute Recital by E. Ziano. Sonata (Bach); Scherzando (Lalo); Nocturne (Barere); Scherzo (Mendelssohn). **7.25,** Talk. **7.40,** Pianoforte Recital. Larghetto (Mozart-Reinecke); Polonaise (Chopin); Cordoba (Albéniz); Harmonies du Soir (Liszt); Tarantella (Liszt). **8.5,** Violin Recital. Chaconne (Bach); Alter Refrain (Kreisler); Sicilienne (Nottara); Two Pieces (Suk): (a) Quassi balatto, (b) Appassionata. **8.35,** Dance Music relayed from the Grand Hotel Restaurant. **9.0,** News.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on **840 metres** from **6.45 to 11.0 p.m.**—**5.30 p.m.,** Dance Music from the Café Ostende. **6.15,** Talk by Lajos Horanzy: Reminiscences of Paris. **6.45,** Concert by the Waldbauer-Kerpely String Quartet and Ernst Dohnanyi: String Quartet in D Minor (Mozart); String Quartet in A Minor (Dohnanyi); The Trout Quintet (Schubert). **8.45,** News. **8.50** (approx.), Dance Music, relayed from the Café New York, with Karl Vajda in his Repertoire. **10.0,** Talk in French: The History of the Franco-Hungarian Alliance. **10.15,** Concert by a Cigány Band, relayed from the Café Baross. Soloist, Imre Vargha (Hungarian Folk Songs). **11.0** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Time and Chimes from the Town Hall. **11.5,** String Ensemble Concert relayed from the Wivex Restaurant. **12.15 p.m.,** Broadcast for Schools. Talk on Natural Science. **12.45 to 2.0,** Interval. **2.0,** Gramophone Concert: Amelita Galli-Curci: Song from Dinorah (Meyerbeer); Enrico Caruso: Song from Carmen (Bizet); Pablo Casals: Prelude (Chopin-Sieveking); Im Krug zum grünen Kranze (Zöllner); Sophie Tucker: Some of these Days (Brooke); Marcell Palotti: Liebe kommt einmal von irgendwo her (Künneke); Stuart Ross and Joe Sargent: The Wedding of the Gigolo (Pola); The Boswell Sisters: Old Yazoo (Waller). **2.30,** Concert by the Station Orchestra, conducted by Emil Reesen: Overture, Martha (Flotow); Waltz from Hansel and Gretel (Humperdinck); Two Norwegian Dances, No. 1 in D Minor, and No. 2 in A (Grieg); Selection from The Girl of the Golden West (Puccini); Habanera (Chabrier); Overture, Tancred (Rossini); Serenade for Strings (Chaminade); Three Airs from The Nutcracker Ballet (Tchaikovsky): (a) Arab Dance, (b) Chinese Dance, (c) Valse des fleurs; La Zarzuela from La Feria (Lacôme); Marche parisienne (Ganne). **4.40,** Exchange and Fish Market Prices. **4.50,** Talk: The Use of Gas and Electricity in the Household. **5.20,** French Lesson for Beginners. **5.50,** Weather Forecast. **6.0,** News. **6.15,** Time Signal. **6.30,** Agricultural Talk. **7.0,** Chimes from the Town Hall. **7.5,** Quartet in A, Op. 50, for Pianoforte, Violin, Viola and 'Cello (Kuhlau). **7.30,** Topical Talk: Technocracy. **8.0 to 1.0 a.m. (Thursday),** Radio Ball for Young People. **8.0,** Dance Music by Louis Preil's Dance Band, with Refrains by Victor Cornelius. In the interval at **9.0,** News. **10.15,** Programme by the Valencia Orchestra, conducted by Aage Juhl-Thomsen. **11.0,** Time and Chimes from the Town Hall. **11.5,** Dance Music from the Ritz Restaurant. **12 Midnight,** Dance Music from Nimb's Restaurant. **1.0 a.m.,** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**12.0 Noon,** Light Music on Gramophone Records. **12.30 p.m.,** News Bulletin. **12.45,** Concert of Opera and Operetta Music. **6.0 to 7.0,** Programme in English by the I.B.C., C. Danvers Walker, R. Chene, and B. McNabb announcing. **6.0,** Concert for Portsmouth and Southsea Listeners. Gilbert and Sullivan Programme: Selection from The Mikado; A Regular

SUN. MON. & TUES. PROGRAMMES

Royal Queen, from The Gondoliers; The Moon and I, from The Mikado; Brightly dawns our Wedding Day, from The Mikado; Selection from Iolanthe; Now let the Loyal Lieges, from The Gondoliers; Take a Pair of Sparkling Eyes, from The Gondoliers; Selection from The Pirates of Penzance. **6.30,** Song Recital for Isle of Wight Listeners: Good-bye (Tosti); The Song of Songs (Moya); Parted (Tosti); String Ensemble: Cavatina (Raff); Love Everlasting (Friml); If I'm dreaming; You are my Heart's Delight (Lehár); String Ensemble: Pearl of mine. **7.0,** Local News and Popular Music on Gramophone Records. **7.30,** Radio Gazette. **8.0,** Talk. **8.15,** The Listeners' Quarter-of-an-Hour and News. **8.30,** Concert. **9.0,** Boulogne Evening. **10.0 p.m.** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music: I love you so much; The Parade of the Blues; Broken dreams; A Cottage for Sale; It must be true; Dream Star of Araby; That tiny tea-shop; Dance away the night; Around the corner; My baby just cares for me; Without a song; Harmony Heaven; Wasn't it nice?; Dream Lover; I lost my girl again. **11.0,** Organ Recital: Minuet antique (Watling); To a Wild Rose (MacDowell); Waltz Suite, No. 3 (Coleridge-Taylor); Le Cygne (Saint-Saëns); Suite Gothique (Boiclli). (a) Prière à Notre Dame, (b) Toccata; Come ye Children; The Storm (Shaw). **11.30,** Vocal Concert: My ain folk; Three Fishers went sailing; On the banks of Allan Water; Orchestra: Mignonette (Friml); Silver threads among the gold; Caller Herrin'; Love's old sweet song; Orchestra: Roses from the South (Strauss). **12 Midnight,** Variety Concert: What is home without a mother; Polly; Winnie the worm; My dear old grey-haired Mother; Cornet Solo: I hear you calling me; Feminine Company; The Barber. **12.30 a.m. (Thursday),** Vocal Duets: Molly; You're driving me crazy; Ro-ro-rolling along; Duet: Waltz, Lorentina; Shout for happiness; Tears; You're the one I care for; Duet: Overture, Trieste. **1.0,** Tango Band: Te fuiste ja ja; La Paloma; Adios Argentina; Tesoro mio; Plegaria; Mama, yo quiero un novio; Madrid; Adios Juventud. **1.30,** Concert of Songs: Love is like that; Same as we used to do; Somewhere in Old Wyoming; Orchestra: Potpourri of Melodies; When you're smiling; You'll never realise; Life's desire. **2.0,** Dance Music: One night alone with you; Lady Luck; Sweet Jennie Lee; Telling it to the Daisies; The Alpine Milkmaid; Shout for happiness; My heart is bluer than your eyes; I've got a feeling; Oh, what a night; Bandy Bertha's Birthday; In a quiet corner; Reaching for the Moon; Yet you forgot; It's unanimous now; If I didn't have you; Sam sat with Sophie on the sofa; When Niccolo plays the Piccolo. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259 metres; 17 kW.; and **CASSEL, 245.9 metres;** and **TRIER, 259.3 metres.**—**5.25 p.m.,** Dialogue on Sickness Insurance. **5.50,** Topical Talk. **6.15,** Time, Programme Announcements, Weather and Exchange. **6.20,** Hans Heyck discusses his own Books. **6.40 to 8.10,** See **Stuttgart.** **8.10,** Concert by the Station Orchestra, conducted by Hans Rosbaud. Soloist, Eduard Erdmann (Pianoforte). Overture to Goethe's Faust (Schumann); Introduction and Allegro appassionato in G, Op. 92 (Schumann); Prélude a l'après-midi d'un faune (Debussy); Fantasia for Pianoforte and Orchestra (Debussy). **9.15,** Time, News, Weather, and Sports Notes. **9.30,** Song Recital by Hilde Crevenna, from the Cycle, Gesänge des späten Jahres (Ernst Krenek); Ballade von den Schiffen; Unter Herbstlaub und Regenschauer; Vor dem Tod; Ballade vom Fest; Liebeslied. **10.0,** Concert from **Munich.** **11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse); **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.**—**3.30 p.m.,** Concert conducted by Otto Ebel von Sosen: Overture, Genoveva (Schumann); Selection from Faust (Gounod); Waltz from the Fifth Symphony (Tchaikovsky); Romantic Suite (Armandola); Military March, Eins, zwei, drei (Hermann Dostal). **4.30** (from **Kiel**), Talk: The Months of the Year in Folk Customs and Belief. **4.55,** Clemens Schmalstich Concert, conducted by Adolf Secker. Soloists: Eva Schlee, Herbert Ernst Groh (Songs) and Heinrich Ritter ('Cello). Exotic Dance Scene, Scheherazade; Herbert Ernst Groh: (a) Ich trage von deiner Seele, (b) Bei sinkender Nacht; Die Glocken von St. Cyre; Eva Schlee: (a) Still ist, doch tief, (b) Weisst D's noch?; Romance; Herbert Ernst Groh: Aus Spaniens Rosen; Reigen from Peterchens Mondfahrt; Herbert Ernst Groh: Die Sonne hat den Rhein geküsst; Intermezzo, Die launische Yvette. **5.50,** Exchange and Market Prices. **6.0,** Dialogue: The Skilled Trades under the Capitalist System. **6.25,** Weather Report. **6.30,** Mozart Concert by the Station Orchestra, conducted by Horst Platen: Overture, Figaro; Aria from Figaro; Three Movements from Eine kleine Nachtmusik; Duet from The Magic Flute; Minuet from The Magic Flute; Minuet from Don Giovanni; Duet from Don Giovanni; German Dances; Overture, The Magic Flute. **7.15,** The Jupiter Symphony in C, Op. 551 (Mozart) by the Station Orchestra, conducted by José Eibenschütz. **8.0,** News Bulletin. **8.10,** Kampfer ohne Schwert—A Radio Play (Paul Leuchsenring), with Music by the Station Chamber Orchestra. **9.10,** News Bulletin. **9.30,** Dance Music from the Haus Siegler. **10.20** (in an interval), Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW.; and **DANZIG, 453.2 metres.**—**12.5 p.m.,** Gramophone Concert of Popular Music. In the interval at **12.20 p.m.,** News. **1.30,** Programme with Gramophone Records, arranged by the Post Office. **2.0,** Exchange and Market Prices. **2.20,** Talk for the Housewife. **2.30,** Programme for Children. **3.0,** Talk for Parents. **3.30,** Concert by the Little Orag Orchestra, conducted by Eugen Wilcken. Prelude to and Sicilienne from Cavalleria rusticana (Mascagni); Erotikon-Suite (Adolf Jensen); Waltz, Klänge aus Polen (Lehár); Two Pieces (Lindemann): (a) Dolorosa, (b) Gaukler aus dem Orient; Selection from Il Trovatore (Verdi); Overture, Der Lebemann (Grünfeld). **4.50,** Books on Wireless Technique. **5.15,** Market Prices. **5.20,** Ice Report. **5.30,** Talk on Health. **6.0,** Bridge Lesson. **6.30,** Dance Music by the Little Orag Orchestra, conducted by Eugen Wilcken, and the Ednur Runde Band. **7.0** (in an interval), News. **8.30,** Imaginary Dialogues by Paul Ernst. **9.0,** Weather and News. **9.15,** Popular Concert on Gramophone Records.

HILVERSUM

Announced **HUIZEN, 296.1 metres;** 20 kW. (7 kW. up to **4.40 p.m.**).—Programme of the Christian Radio Society (N.C.R.V.). —**10.40 a.m.,** Song and Pianoforte Recital. **11.25,** Talk. **11.40,** Police Announcements. **11.55,** Concert by the Utrecht Municipal Orchestra, conducted by H. v. Goudoever. Overture, Cyrano de Bergerac (Wagenaar); Eine kleine Nachtmusik (Mozart); Valse de concert (Glazunov). **12.40 p.m.,** Talk. **12.55,** Concert (contd.). The Nutcracker Suite (Tchaikovsky); Will-o'-the-Wisp Minuet; Dance of the Sylphs and Hungarian March from The Damnation of Faust (Berlioz). **1.40,** Quartet Concert. **2.25,** Talk. **2.40,** Choral Concert. **3.25,** Talk. **3.40,** Concert for Young People. **4.55,** Concert of Sacred Music, relayed from St. George's Church, Amersfoort. **5.40,** Talk. **5.55,** Sacred Music (contd.). **6.40,** Talk. **7.10,** Police Announcements. **7.25,** Religious Information. **7.40,** Choral and Orchestral Concert, with Addresses. In the intervals, Talk, and at **9.25,** News. **10.10,** Orchestral Concert. March, Gott mit uns (Muller); Selection from Romeo and Juliet (Gounod); Violettes (Waldteufel); March, Granada (Wittmann); Durch Nacht zum Licht (Lanken); March, My Regiment (Blankenburg); Officer of the Day (Hall); Psalm; National Anthem. **11.10** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM; 1,875 metres;** 8.5 kW.—**9.55 a.m.,** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). **9.55,** Concert by the Small Station Orchestra, with Popular Music on Gramophone Records. **1.25 p.m.,** Interval. **1.40,** Talk for Women. **2.40,** Programme for Children. **5.10,** Organ Recital by J. Jong, with Songs by A. de Booy. March (Schubert); Occhi di Fata (Denza); Cor ingrato (Cardilla); Song: Mattinata (Leoncavallo); Minuet (Boccherini); Serenade (Romberg); The Rosary (Nevin); Song (Rimsky-Korsakov). **5.40,** Concert by a Mandoline Orchestra, Indianola (Henry-Onivas); Porzellanpüppchen (Lincke); The Pigeon (Yradier); My Pretty Home (Howler). **5.55,** Light Music. **6.30,** Concert by a Mandoline Orchestra (contd.). Solidaritätslied (Eysler); The Worker's Song (Kok). **6.40,** Talk. **7.0,** Orchestral Concert. Dance Suite, Op. 24 (Stürmer); Selection from The Nothing-doing Bar (Milhaud); Selection from La Création du Monde (Milhaud). **7.40,** S.O.S. Announcements. **7.45,** Talk. **8.5,** Leoncavallo Concert by the Station Orchestra and Soloists: Mlle. H. Ludolph (Soprano) and M. P. Perlot (Baritone). Extracts for Voice and Orchestra from I Pagliacci; Serenade, Selection and Duet from I Pagliacci; Selection from La Bohème. **8.45,** Dramatic Programme. **10.30,** Light Music on Gramophone Records. **10.40,** News. **10.50,** Light Music on Gramophone Records. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.0 p.m.,** Talk: Manners and Customs in Canada. **6.20,** Announcements and Gramophone Records. **6.30,** See **Warsaw.** **9.20,** Dance Music. **10.0,** The Letter Box in French.

KAUNAS

1,935 metres; 7 kW.—**6.30 p.m.,** Instrumental Concert: Xylophone Solo: March (Seele); Flute Solo: Waltz (Krantz); Clarinet Solo: Concert Polka (Waldteufel); 'Cello Solo: Berceuse (Järnefeld); Violin Solo: Serenade (Hubay). **7.10,** Talk for Housewives. **7.30,** Variety Programme. **7.50,** Scientific Talk. **8.10,** Concert: Song (Massenet); Slav Dance (Dvorak); Dream of Love (Becce); Descriptive Piece (Siede). **8.40,** Sports Notes. **8.50,** Concert (contd.). Selection from The Bartered Bride (Smetana); Gnomenzug (Blon); Ballet Suite (Popy). **9.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres; 40 kW.; and **HELSINKI, 368.1 metres.**—**5.15 p.m.,** Esthonian Lesson. **5.40,** Programme relayed from **Tampere (560 metres).** **7.45,** News in Finnish. **8.0,** News in Swedish.

LANGENBERG

473 metres; 60 kW.—**12 Noon,** Concert, conducted by Eysoldt. Overture, Schicksalsstunde (Clemus); Selection from Fidelio (Beethoven); Ballet Music from The Queen of Sheba (Goldmark); Prelude (Chopin); Verherrlichung (Ailbout); Slav Rhapsody (Friedemann); Waltz, Märchen aus schöner Zeit (Faust); Potpourri, Viribus unitis (Richter). In the interval at **1.0 p.m.,** News. **1.30,** Sponsored Programme with Gramophone Records. **2.30,** Economic Notes and Time. **2.50,** Programme for Children. **3.20,** Review of New German Books. **3.40,** Talk: Wireless in Schools. **4.0,** Concert by the Station String Quartet and Margarete Dörr (Songs). String Quartet in A, Op. 41, No. 3 (Schumann); Folk Songs (Brahms): (a) Die Sonne scheint nicht mehr, (b) Sehnsucht, (c) Der Überläufer, (d) Vom verwundeten Knaben, (e) Klage, (f) Dort in den Weiden, (g) Vergebliches Ständchen; String Quartet No. 3 in G, Op. 25 (Bettingen). **5.20,** Talk: Plants and Animals. **5.45,** Weather, Time, Economic Notes, and Sports Results. **6.0,** Talk on Social Reform. **6.20,** Health Talk. **6.35,** Talk: Conscience—its Strength and Weakness. **6.55,** News. **7.0,** Probable Relay of another Station. **9.5,** News and Sports Notes. **9.25,** Serenade on Gramophone Records. **9.45,** See **Munich.** **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW., and **DRESDEN, 319 metres.**—**11.0 a.m.,** Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber; Overture, Rund um die Liebe (Oscar Straus); Suite, Faun- und Elfenreigen (Kark); Melodies from Der Evangelimann (Kienzl); Three Pieces for Strings (Kranz): (a) Die sieben Schwaben, (b) Dornröschen und der Prinz, (c) Der Wolf und die Geisslein; Waltz from Der Rastelbinder (Lehar); Selection from The Carnival Fairy (Kalman); Wiegenlied (Pittrich); So schön wie's einmal war (Ziehrer); Overture, Der Wahrheitsmund (Flatzbecker); Viennese March (Reckenwald). In an interval at **12 Noon,** News, Weather, Snow Report and Time. After the Concert, Exchange Quotations. **1.0 p.m.,** Programme for the Unemployed. **1.30,** Programme to be announced. **2.35,** Exchange and Market Prices. **3.0,** King Thrushbeard—Play for Children (Hans Peter Schmiedel). **4.0,** The Princess and the Dwarf—Children's Opera (Friedrich Frischenschlager). **4.50,** Exchange Quotations, Weather and Time. **5.10,** Book Review: (a) Brave New World (Aldous Huxley), (b) Ansichten (Alfred Polgar). **5.35,** Italian Lesson. **5.55,** Programme to be announced. **6.5,** Talk: The South-East in the Industrial Policy of Europe. **6.30,** Military Band Concert, conducted by Ferdinand Bier. **7.30,** Talk on Fenimore Cooper's Books. **8.15,** Topical Talk. **8.25,** First Symphony in C (Beethoven), by the Leipzig Symphony Orchestra, conducted by Willy Steffen, with Commentary by Dr. Alfred Henss. **9.25,** News Bulletin. **9.45,** Programme from **Munich.** **11.0** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

574.7 metres; 7 kW.—**5.0 to 5.30 p.m.,** Programme in English by the I.B.C.: Waltz, Roses from the South (Joh. Strauss); I know of two Bright Eyes; Albumblatt (Wagner); Träumerie (Wagner); Lies; Romance; In my Heart; Deep River; Waltz, Wine, Woman and Song (Joh. Strauss). **5.30,** Light Music on Gramophone Records. **6.0,** Russian Lesson. **6.30,** Literary Talk. **7.0,** Programme to be announced. **9.0,** Time, Weather, and Popular Music on Gramophone Records.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South-East. **8.30,** Le Roi d'Ys—Opera in Three Acts (Lalo). After the Opera, News Bulletin.

MADRID

ARANJUEZ (EAQ); 30.43 metres; 20 kW.—**10.30 p.m.,** Popular Music. **10.45,** Radio Chronicle. **11.0,** Popular Music (contd.). **11.35,** Talk. **11.40,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, Literary Talk: Ramon de la Cruz, and Request Gramophone Concert. **7.30,** Agricultural Talk and Request Gramophone Concert (contd.). **8.25,** News Bulletin and Political Review. **8.30 to 9.30,** Interval. **9.30,** Chimes, Time Signal, Political Review and Confessions before the Microphone, by M. Sanchez de Palacois, with Amparo Miguel Angel, Amparo Taberner, Gallegnito, M. Ligero and M. Alonso. **10.0,** Radio Play submitted in connection with the Radio Play Competition. **11.45,** News Bulletin. **12.0 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**5.10 p.m.,** Light Music on Gramophone Records. **5.15,** Talk for Workers. **5.25,** Song Recital by L. Haskova. **6.0,** See **Prague.** **6.10,** See **Brno.** **7.25,** See **Prague.** **9.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**4.30 p.m.,** Concert. **5.30,** Symphony Concert, relayed from the Radio Theatre. Part I.—Music by Soviet Women Composers. Part II.—Music by Borodin and Rimsky-Korsakov. **8.0,** Talk in English: International Women's Day.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres,** and **Nürnberg, 239 metres.**—**4.0 p.m.,** Concert, conducted by Erich Kloss. **5.15,** English Lesson. **5.35,** Talk for the Business Woman. **5.55,** Time, Weather, and Agricultural Notes. **6.5** (from **Nürnberg**), Orchestral Concert: March, In die Welt (Halter); Sonnenwende (Vorphal); Grossmütterchen erzählt (Ritter); Intermezzo, Vor der Schmiede (Halter); Song, Sei nicht bös, from Der Oberstaiger (Zeller); Karl Boss-Marsch (Schuppe). **6.40,** Review of Foreign Affairs. **7.0,** Orchestral Concert of Music by Franz Lachner; Conductor: L. K. Mayer; Soloist: Margot Leander (Soprano): Allegretto in E flat, Catarina's Aria; Auf immer getrennt; Overture, Scherzo, Chaconne, and Fugue from Catarina Cornaro from the Seventh Suite in D Minor. **7.45,** Prologue and Finale from I Pagliacci—Opera (Leoncavallo), on Gramophone Records. **8.20,** Orchestral Concert, conducted by Karl List: Overture, Light Cavalry (Suppé); Waltz (Tchaikovsky); Japanese Carnival (de Basque); Suite, Reminiszenzen an Wien (Joachim-Albrecht von Preussen); Music for a Punch and Judy Show (Marie); Selection from The Bartered Bride (Smetana); Aquarellen-Walzer (Jos. Strauss); Arabian Dance (Grieg); Viennese Waltz (Benatzky); Petersburger Schlittenfahrt (Eilenberg). **9.20,** Time, Weather, News, and Sports Notes. **9.45,** Concert, conducted by Erich Kloss.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 413.2 metres,** and **Rjukan, 447.1 metres.**—**4.0 p.m.,** Concert of Popular Music, relayed from the Continental Hotel. Conductor: Willy Johansen. **5.0,** French Lesson. **5.30,** Talk for Boys. **6.0,** Announcements, Weather and News. **6.30,** Educational Talk. **7.0,** Time Signal. **7.1,** Concert by the Station Orchestra, conducted by Hugo Kramm. Soloist: Mme. Berit Cleve (Pianoforte). Holberg Suite for Strings (Grieg); Concerto for Pianoforte and Orchestra (I. Eyvind Alnaes); Two Norwegian Dances (Karl Andersen). **8.20,** Reading. **8.40,** Weather and News. **9.0,** Topical Talk. **9.15,** Talk on Bridge, relayed from **Aalesund (447.1 metres).** **9.45,** Dance Music on Gramophone Records. **11.0** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—**7.0 p.m.,** Dopolavoro Notes, Tourist Talk, Agricultural Notes and Giornale Radio. **7.20,** Light Music on Gramophone Records. In the interval at **7.30,** Time and Announcements. **7.45,** Orchestral Concert; Soloists: A. Gonzaga (Soprano), and A. Saporetti (Violin); Spanish Caprice (Rimsky-Korsakov); Songs: (a) Ogni pena più spietata, (b) Waltz, Beltà (Pieroni); In the Steppes of Central Asia (Borodin);

Violin Solo: Sonata (Porpora); Songs: (a) Il giardino dei baci (Ranzato), (b) Rondo from Act III of I Puritani (Bellini); Andante (Geminiani-Marinuzzi); Violin Solos: (a) Largo (Veracini), (b) Capriccio, No. 28 (Florillo); Overture, Oberon (Weber). In an Interval: Talk. 9.0 (approx.), Song Recital. 9.55, News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW. Time Signal (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parlé. 7.20, Weather Report. 7.30, Programme for Children. 8.0, Scientific Talk. 8.15, News Bulletin. 8.20, Orchestral Concert, conducted by Edouard Flament: Suite (Purcell); Violin Solo: Selection from Le Sire de Vergy (Terrasse); Canzonetta (Souchon); Traumland-Walzer (Fucik). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 k.W.—6.45 p.m., Journal Parlé. 7.0, Gramophone Concert of Popular Music. 8.0, Tourist Report. 8.5, Talk on Economies. 8.15, Interval. 8.30, Sponsored Concert. 9.0, Interval. 9.10, Concert. 10.10, Dance Music by the Lido Band. 11.0, News.

PARIS

RADIO PARIS; Call CFR; 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Gramophone Records: A Summer Night (Peterson-Berger); Estrellita (Ponce Davis); Selection from La Monsmé (Game); Roses from the South (Strauss). 8.0, Press Review and Weather. 12 Noon, Educational Talk. 12.15 p.m., Concert by the Station Orchestra: Selection from Le Petit Duc (Lecocq). 12.30, Organ Recital relayed from Gaumont Palace: Melody (Woods); Selection from The Daughter of the Regiment (Donizetti); What would you do? (Whiting). 1.0, Exchange, News and Weather. 1.5, Concert by the Radio Orchestra (contd.): Selection from Madame Chrysanthème (Messager-Delsaux); Selection from J'adore ça (Christiné); Selection from The Count of Luxembourg (Lehár); Selection from La fiancée du Scaphandrier (Tarrasse); Selection from L'étoile del' Andalousie (Tavan); 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.40, German Lesson. 7.0, Medical Talk. 7.20, Concert: A Gipsy Fête (Heykens); In the Gardens of Love (Hartung); Selection from Monsieur de Pourceaugnac (Lully-Vidal); Sérénade lointaine (Van Parys); Cécile Idylle (Trémiscot); Dance and Flirt (Sudessi); Sérénade à Pierrette (Szulc); Prelude (Silver); Minuet (Schubert). 7.45, Commercial Prices and News. 8.0, Reading. 8.30, News and Weather. 8.40, Fashion Review. 8.45, Kinderszenen, for Pianoforte (Schumann), on Gramophone Records. 9.0, Beethoven Concert by the Lamoureux Concert Society, relayed from the Salle Gaveau. Conductor: Henri Rabaud. Soloists: Pierre Maillard-Verger (Pianoforte) and Germaine Hoerner (Songs). The Eroica Symphony; Concerto in G for Pianoforte and Orchestra; Scene and Aria from Ah, Perfido; Overture, Leonora, No. 3. In the interval at 9.15, Press Review and Weather.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—9.0 p.m., Work-a-day Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather Report. 9.32, Market Reports. 9.45, Pianoforte Interlude. 9.53, David Lawrence Dispatch. 9.58, Programme Announcements. 10.0, KDKA Orchestra. 10.30, The Singing Lady. 10.45, Little Orphan Annie, from **New York**. 11.0, Booth Tarkington's Maude and Cousin Bill, from **New York**. 11.15, Time Signal. 11.16, Weather Report. 11.17, Teaberry Sport Review. 11.22, Press News Reeler. 11.27, Strange Facts. 11.29, Temperature Report. 11.30, KDKA Orchestra. **11.45 to 3.15 a.m. (Thursday), New York** Relay. 11.45, To-day's News by Lowell Thomas. 12 Midnight, Amos 'n' Andy. 12.15 a.m. (Thursday), Carson Robinson and his Barbasol Buckaroos. 12.30, Five Star Theatres—Dramatisation of Short Stories. 1.0, Eno Crime Club. 1.30, Time Signal and Harriett Lee and her Leaders. 1.45, Country Doctor. 2.0, Adventures of Sherlock Holmes. 2.30, Woodbury Programme with Marton Downey and Donald Novis. 3.0, D. W. Griffith's Hollywood. 3.15, Around the Cracker Barrel. 3.30, Bridge School of the Air by E. Hall Downes. 3.45, Bradley Kincaid. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.15, Press Last Minute News Flashes. 4.20, Smith Fallew and his Orchestra. 4.58, KDKA Artist Bulletin. 5.0, College Inn Orchestra, from **New York**. 5.30, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., Concert by the Station Orchestra, conducted by Otakar Jeremias. Soloist: F. Daniel (Violin). Overture, The Hussite Bride (Sebor); Fantasia for Violin and Orchestra, Op. 51 (Provaznik); Selection from Rusalka (Dvorák). 4.0, Medical Talk for Mothers. 4.10, Programme for Women. 5.5, Agricultural Report. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission: Talk for Workers: The Fiftieth Anniversary of the Death of Karl Marx. 6.0, Chimes. 6.1, News Bulletin. 6.10, See **Brno.** 6.25, Programme to be announced. 6.55, Talk on the following Transmission. 7.5, Concert by the Czech Philharmonic Orchestra and the Philharmonic Choir, conducted by Karel Jirak: Rhapsody, Taras Bulba (Janacek); Symphonic Poem, Op. 34, Maturity (Suk). In the interval at 8.0, Time Signal. 9.0, Time Signal. 9.1, News Bulletin. 9.15 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS; 403 metres; 25 kW; **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.**—5.0 p.m. (from **Lausanne**), Programme for Children. 6.0 (from **Geneva**), Weather, News and Announcements. 6.30 (from **Lausanne**), Talk on Potato-Growing. 7.0 (from **Geneva**), Talk: The Opening of the Automobile Show-Rooms. 7.15 (from **Geneva**), Concert of Chamber Music by the Station Quartet. 8.0, Organ Recital, relayed from St. Nicolas Cathedral, **Fribourg.** 8.20, News Bulletin and Weather Forecast. 8.30, Le Roi d'Ys—Opera in Three Acts (Lalo), relayed from **Paris.** 11.0 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes and News. 9.30, Reading. 10.0, Violin Solos by Thorarinn Gudmundsson, followed by Arias and Eine kleine Nachtmusik (Mozart) on Gramophone Records.

RIGA

525 metres; 15 kW.—6.0 p.m., Weather. 6.5, Orchestral Concert, conducted by Prof. Medins. 7.0, News Bulletin. 7.20, Song Recital. 7.40, Concert of Popular Music. In the interval at 8.0, Weather and News. 8.30, Concert of Light Music. 9.30 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres;** and **2RO, 25.4 metres.**—7.0 a.m., Gymnastics. 7.15 to 7.30, Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Orchestral Concert. Santiago (Nissim); Manuela (Cadueci); Le ragazze scozzesi (Cattolica); Selection from A Waltz Dream (O. Straus); Come with me (Henderson); Pastorale montanina (Ranzato); Pianoforte Solo, Piccolo Pete (Baxter); Dance of the Hours from La Giocconda (Ponchielli); Melody (Fischer); Vesuviana (Marchetti). In the interval from 12.30 to 12.45, Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30 to 5.30, Vocal and Instrumental Concert. Soloist: Renata Pellegrino (Violin). Violin Solos: (a) Romance (Svendsen), (b) Caprice viennois (Kreisler), Soprano Solos: (a) Aria from The Daughter of the Regiment (Donizetti), (b) Air from Cinq Mars (Gounod), Violin Solos: (a) Canzonetta (d'Ambrosio), (b) Capitan Fracassa (Castelnuovo-Tedesco), Soprano Solos: (a) Strimpellata (Tarenghi), (b) Aria from La contessa d'Amalfi (Petrella), Violin Solo: Danse tzigane (Nachez). 6.10 (Naples), Shipping and Sports Notes. 6.15, Agricultural and Dopolavoro Notes. 6.20, Giornale Radio. 7.0, Time, Announcements, and Light Music on Gramophone Records. 7.15, Medical Talk. 7.30, Sports Notes and Tourist Report. 7.45, Relay from a Theatre. In the intervals: Poems by Giovanna Scotto, Announcements, and News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—7.30 p.m. to 12.15 a.m. (Thursday), New York Relay. 7.30, Westminster Choir. 8.0, Two Seats in the Balcony. 12 Midnight, Mischa Weisbrod (Violinist). 12.15 a.m., Stock Reports. 12.30 to 2.0, New York Relay. 12.30, Van and Don—Comedy Team. 12.45, The Goldbergs—Comedy Sketch. 1.0, The Royal Vagabonds with Ken Murray. 1.30, The Shadow—Mystery Drama. 2.0, Vocal Club Programme. 2.15, Three Shades of Blue—Male Trio. 2.30, Supper Club Orchestra and Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres, 60 kW.; **BASLE, 244.1 metres;** and **BERNE, 245.9 metres.**—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Concert of Gramophone Records by Famous Artists: Menuhin, Kreisler, Bohnen, Chaliapin, Mengelberg and Fürtwangler. 12.35 to 12.45 p.m., Weather and Exchange. 2.30, Light Music on Gramophone Records. 3.30 (from **Berne**), Programme for Children. 4.0, Spanish Folk Music on Gramophone records. 4.30 to 4.35, Weather. 5.30 (from **Zürich**), Review of Books for Children. 6.0, Time, Weather and Market Prices. 6.15 (from **Zürich**), English Conversation Lesson. 6.45 (from **Berne**), Symphony Concert by the Berne Municipal Orchestra, conducted by Dr. Albert Nef; Soloist, Ernst Schläfli; Music by Schubert, Pfitzner and Mendelssohn. 8.0 (from **Berne**), Bedtime Stories. 8.30, Weather and News. 8.40 (from **Berne**), The Little Match Girl, Fairy Play (Lauber), after the Story by Hans Andersen, Music by Luc Balmer, the Composer conducting. 9.15 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.**—12 Noon, Broadcast for Schools. 4.5 p.m., Peasant Programme, relayed from **Boden.** 4.30, Reading. 5.0, Variety Music on Gramophone Records. 5.55, Talk from **Uppsala, 453.2 metres.** 6.15, Weather and News. 6.30, Talk. 7.0, Violin Recital by Lottie Andreasson. Tempo di minuetto (Pugnani-Kreisler); Air (Porpora); Arieta española (Manén); Introduction and Presto (Senaillé Manén). 7.15, The Whiteheaded Boy—Comedy in Three Acts (Lennox Robinson). 8.45, Weather and News. 9.0, Dance Music. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert: Suite, Impressions d'Italie (Charpentier); Petite Suite (Debussy); Danse Slave and Fête polonaise from Le roi malgré lui (Chabrier); Scottisch March (Debussy). 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Selection from La Mascotte—Operetta (Audran), on Gramophone Records. 2.0 to 4.45, Interval. 4.45, Talk in German on Electricity in the House. 5.0, Concert in Honour of M. T. G. Masaryk, President of the Czechoslovak Republic. The Station Orchestra, conducted by M. Villers, and the Czechoslovak Students' Choir from Strasbourg University. Soloist: M. R. Schoch (Soprano). Introductory Talk by M. Jan Laska (Czechoslovak Consul at Strasbourg). 6.0, Trio Concert of Variety Music, relayed from **Lille (265.4 metres).** 7.0, Sociological Talk: Children and the Cinema. 7.15, Popular Music on Gramophone Records. 7.30, Time and News. 7.45, Light Music on Gramophone Records. 8.20, Lottery Results. 8.30, Orchestral Concert, conducted by Paul Bastide, relayed from the Palais des Fêtes: Symphony in E Minor, No. 5 (Tchaikovsky); La grande certitude (Monfouillard); Le Triptyque (Le Flem). 10.30, Popular Music on Gramophone Records. 11.0, Concert by the Jean Clergue Quintet, relayed from **Radio Coloniale (Paris) (25.63 metres).** 12 Midnight (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.**—11.0 a.m. (from **Freiburg**), Concert by the Freiburg Concert Orchestra, conducted by R. Fried; Soloist: Nell Ueter (Violin); Overture and Suite from Rodrigo (Handel); Concerto in A Minor for Violin (Viotti); Rossini Fantasia, Rossiniana (Respighi); Overture, Zaide (Mozart); Selection from My Country (Smetana); Humoresque (Dvorák); Jota from the Suite populaire espagnole (Falla); Evening Music (Foerster); Music from The Miracle (Humperdinck). 12.15 p.m., Time, News, Weather, and Programme Announcements. 12.30, Concert from **Langenberg.** 1.0, Concert, arranged by the Post Office. 3.0, Programme for Children, relayed from **Karlsruhe.** 4.0, See **Munich.** 5.5, Time, Weather, and Agricultural Notes. 5.15, Talk: The Great Memorials and Monuments of Württemberg. 5.40, Talk: Workers' Testimonials and other Papers. 6.5, Time, News, and Produce Market Report. 6.15, Recital of Hermann Löns Songs set to Music by Franz Albert Gabriel; Soloist: Bruno Müller (Baritone): Schäferlied; Rose im Schnee; Vergissmeinnicht Der ferne Stern; Herzblatt am Lindenbaum; Verschütt; Das Vogelorakel; Der Stromer. 6.40, Violin Recital: Sonata, Il Trillo del Diavolo (Tartini-Kreisler); Adagio (Franz Ries); Bohemian Dance (Weinberger); Romanian Folk Dances (Bela Bartok). 7.10, Unfamiliar Europe—Ireland, the Emerald Isle—Programme arranged by Josef Eberle and Karl Köstlin (on Gramophone Records). 8.10, See **Frankfurt.** 9.15, Time, News, Weather, and Programme Announcements. 9.45, Concert from **Munich.** 11.0 (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—6.0 p.m., News Bulletin. 6.15, La Boite à jonioux (Debussy), by a Symphony Orchestra. 6.30, Opera Music: Selection from: (a) The Tales of Hoffmann (Offenbach), (b) The Damnation of Faust (Berlioz), (c) Faust (Gounod); Hérodiade (Massenet). 6.50, Talk. 7.15, Racing Results, Market Prices, and News Bulletin. 7.25, Local News. 7.30, Light Music. 7.45, Orchestral Music: Selection from: (a) Le Grand Mogol (Audran), (b) Les Cloches de Corneville (Planquette), (c) Elle est à vous (Yvain). 8.0, Airs from Opera: (a) Carmen (Bizet), (b) Rigoletto (Verdi), (c) Romeo and Juliet (Gounod). 8.15, Concert by a Viennese Orchestra. 8.45, Melodies from Sound Films. 9.0, Concert, arranged by the Philharmonic Society; Conductor: M. Massonnier. In the interval, Light Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco: 'Cello Solo: Spring Song (Mendelssohn); Song of the Volga Boatmen; Selection from The Duchess of Chicago (Kálmán); Air from Mignon (Thomas); Dreamland (Fucik). 11.0, Instrumental Solos. 11.15, Orchestral Concert. 11.30 to 12 Midnight, Programme in English by the I.B.C. 11.30, Military Band: National Emblem March; Serenade; Gaiety Echoes; King Cotton March; Cupid's Army; Waltz, The Blue Danube (Joh. Strauss); March, Old Comrades (Teike). 11.57, I.B.C. Goodnight Melody. 12 Midnight, Weather and Announcements. 12.5 a.m. (Thursday), Vocal Tangos. 12.15, Classical Music: Quartet in G Minor (Debussy); Variations on a Theme for Two Clarinets (Beethoven). 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—4.0 to 6.0 p.m., See **Turin.** 6.0, Variety Music on Gramophone Records. 6.20, See **Turin.** 6.35, Orchestral Music from the Café Dante. 7.0 till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.**—4.0 to 5.0 p.m., Tenor and Soprano Song Recital. 5.35, Giornale Radio, Dopolavoro and Agricultural Notes. 6.0, Light Music on Gramophone Records. 6.20, Giornale Radio. 6.30, Time, Announcements, Tourist Report, and Variety Music on Gramophone Records. 7.0, Giornale Radio and Weather. 7.15, Medical Talk. 7.30, A Comedy in Three Acts, followed by Light Orchestral Music. 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and **50.26 metres (Evening);** 10 kW.—10.0 to 10.15 a.m., Religious Information in Spanish. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.**—3.50 p.m., Concert by the Isy Geiger Orchestra. Selection from The Mask (Hubay); Waltz Fantasia, Sehnsucht (Weinberger); Selection from Hansel and Gretel (Humperdinck); Go on (Rawicz); Dancing Stars (Rawicz); Ballad, Tom the Rhymer (Loewe); Song from The Little Dutch Girl (Kálmán); Song, Ich bin ein Wiener Kind, from Der Rastelbinder (Lehár); Song, Vera Violetta (Eysler); Intermezzo, Wiener Blumen (Kreuzberger); Song, Du wärst für mich die Frau gewesen, from Frühlingsstürme (Weinberger); Popular Songs, 1931-32 (Geiger). 5.5, Talk: Protecting the Skin from Injuries caused by Sport. 5.30, Talk for Workers. 5.55, Talk on Great Men of History: The Emperor Charles V. 6.20, Time, Weather and Programme Announcements. 6.30, Hannele Matterns Himmelfahrt—Dream Poem in Two Parts (Gerhart Hauptmann), recited by Karl Kraus, with Musical Accompaniment by Franz Mittler. 7.45, Concert of Light Music by the Josef Holzer Orchestra and the Bohème Quartet. 9.15, Report on the Austrian Musical Festival. 9.25, News, Weather and Announcements. 9.40, Instrumental Concert, relayed from the Krantz-Ambassador Hotel. Gustav Macho (Violin), Hans Quiquirez (Cello), and Eugen Billig and Gustl Heintze (Pianofortes).

WARSAW

1,411 metres; 120 kW.—10.57 a.m., Time Signal and Bugle Call from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Light Music on Gramophone Records. 12.20 p.m., Weather Report. 12.25 to 2.10, Interval. 2.10, Announcements. 2.15, Economic Notes. 2.30, Boy Scout's Report. 2.35, Programme for Children. 3.0, Popular Music on Gramophone Records. 3.20, Educational Talk: The Crusades. 3.40, Talk: The Part Played by Poland in the Brzezany Treaties of 1918. 4.0, Gramophone Concert: Songs by Mme. Jeritza (Soprano) and Enrico Caruso (Tenor); In the interval: Announcements. 4.40, Talk for Workers. 4.55, Programme Announcements. 5.0, Talk on Polish Literature. 5.20, News. 5.25, Light Music. 6.0, Miscellaneous Items. 6.20, Agricultural Report. 6.30, Literary Talk: Post-War Czechoslovakian Novels. 6.45, Radio Journal. 7.0, See **Berlin (Witzleben).** In the interval: Sports Notes and Radio Journal. 9.0, Topical Talk. 9.15, Dance Music. 9.40, Talk in Esperanto on General Pilsudsky, relayed from **Cracow, 312.8 metres.** 9.55, Aviation Weather Report and Police Notes. 10.0, Dance Music.

ZURICH.—See **Schweizerischer Landessender.**

THURSDAY
MARCH THE NINTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"Leaders in Other Lands," Vernon Bartlett. "The Fall of the House of Usher," a play, after E. A. Poe, by Peter Creswell and Barbara Burnham.
LONDON REGIONAL	Concert from Queen's College, Birmingham. Royal Philharmonic Society's concert, from Queen's Hall.
MIDLAND REGIONAL	From the operas: Orchestral programme. Symphony concert from the Town Hall, Birmingham.
NORTH REGIONAL	Hallé concert, from the Free Trade Hall, Manchester.
SCOTTISH REGIONAL	"Early Motoring Days in Scotland," J. Inglis Ker. Reid orchestral concert.
BELFAST	"In Lighter Vein," orchestral concert.

ABROAD

BERO-MUNSTER	8.40 p.m. Old Swiss Songs to the Spinet, by Hans Visscher van Gaasbeek (tenor) and Martha Hamm-Stoecklin (spinet).
HEILSBERG	8.10 p.m. "Masters of their Crafts": Famous soloists on gramophone records.
HUIZEN (announced Hilversum)	7.55 p.m. Programme by the Concertgebouw Orchestra, Amsterdam, conducted by Pierre Milhaud.
LANGENBERG	7 p.m. "In the Moonlight," an orchestral and choral concert.
LEIPZIG	6.30 p.m. Concert of Folk Music (zithers, mandolins, guitars, etc.).
ROME	7.45 p.m. Symphony concert conducted by Alceo Toni.
STUTTGART	8.30 p.m. The Jupiter Symphony (Mozart).
WARSAW	7 p.m. Concert of Ukrainian music, by the Lysenko National Choir.

ATHLONE

413 metres, 60 kW.; and **CORK, 224.4 metres.**—**1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.10,** Dublin Cattle Market Report. **7.20,** News. **7.30,** Time Signal. **7.31,** French Lesson. **7.45,** Literary and Dramatic Talk. **8.0,** The Station Orchestra. **8.40,** Soprano Solos by Josephine Hennessy. **8.55,** Pianoforte Solos by Arthur Duff. **9.15,** Dr. Annie Patterson in a Programme of her own Compositions. **9.45,** Song Recital by R. Harris. **10.0,** Gramophone Concert of Light Music. **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. Talk in the interval. **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations and Educational Talk in Catalan. **8.0,** Popular Music on Gramophone Records, and News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, and Market Prices. **9.5,** An Opera relayed from the Gran Teatro del Liceo. **11.0** (in an interval), News Bulletin.

BARI

270 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes, Tourist Talk, and Dopolavoro Notes. **7.20,** Giornale Radio and News. **7.30,** Time Signal and Announcements. **7.35** (approx.), Military Band Concert, conducted by M. Salvatore Rubino. Overture, Tannhäuser (Wagner); Extracts from Acts I and II of Adrienne Lecouvreur (Cilea); Melody from Act III of Don Carlos (Verdi); Selection from Marcella (Giordano); Suite, Scene calabresi (de Nardis); Military March (Schubert). In the interval: Art Notes. **9.30,** Popular Music on Gramophone Records. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessendar.**

BELGRADE

430.4 metres; 2.8 kW. **4.0 p.m.,** Talk. **5.26,** Time and Programme Announcements. **5.30,** Dialogue in French. **6.0,** Orchestral Concert: Overture, Lysistrata (Lincke); Yugoslav Rhapsody No. 3 (Dominis); Melody (Tijardovic); Romantic Suite: A Day in Venice (Nevin). **7.0,** Programme relayed from **Zagreb (307 metres).** **9.0,** News. **9.5,** Cigány Music, relayed from the Potrosacka Zadruga Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert of Classical Music from **Berlin (Witzleben).** **2.0,** Musical Programme for Children. **2.30,** Weather and Exchange. **2.45,** Reading (Rudolf Huch). **3.0,** Two Talks for Women. **3.30,** Concert from **Berlin (Witzleben).** **4.10,** Talk: The Loss of the East Mark. **4.30,** Pianoforte Recital: Album Sonata for Frau Mathilde Wesendonck (Wagner); Ankunft bei den Schwarzen Schwänen (Wagner); Turkish Rondo (Bizet); Pictures of the Rhine (Bizet). **5.0,** Advanced Shorthand Lesson. **5.30,** Two Sonatas for 'Cello: Adagio from the Solo Sonata (Zoltan Kodaly); Solo Sonata (Paul Hermann). **5.55,** Weather and Announcements. **6.0,** German Lesson for Germans. **6.30,** A Poem. **6.35,** Talk: Can the Fishing Industry survive the Crisis? **7.0,** Concert of Light Music by the Bernard Derksen Band: Arias in Old Style (Brogi); Poem (Fibich); Verborgenheit (Wolf); Waltz, Wenner Herzen (Derksen); Wiegenlied (Mozart); Cradle Song (Gretchaninov); Sérénade mélancolique (Tchaikovsky); Waltz from the Second Serenade (Volkmann); A Wedding Day on Troldhaugen (Grieg); Selection from Barfüsscle (Heuberger). **7.30,** See **Berlin (Witzleben).** **8.30,** See **Stuttgart.** **9.0,** Weather, News and Sports Notes. **9.45,** Weather Report for Shipping. **10.0** (approx.), Concert and Report of the Six Days' Races from **Berlin (Witzleben).** **11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**3.30 p.m.,** String Quartet Concert: String Quartet (Windsperger); String Quartet in D (Mozart). **4.25,** Talk on Young Nations. **4.45,** Sports Talk: Handball. **5.5,** Orchestral Concert relayed from the Café Corso. **5.30,** Josef Buchhorn reads from his Prose. **5.45,** Talk on Magdeburg. **5.55,** The Witzleben Station informs its Listeners. . . . **6.0,** Topical Talk. **6.15,** A Rehearsal in the Play House—a Radio Report. **6.45,** Announcement. **6.50,** Mass in G (Schubert) by the Station Choir and Orchestra, conducted by Maximilian Albrecht. Soloists: Mary Wurm-Meisenberg (Soprano), Heinz Marten (Tenor), Georg Höllger (Baritone), and Hans Georg Görner (Organ). **7.20,** Dance Music, with Margit Suchy (Soprano). **9.0,** Weather, News, and Sports Notes. **9.20,** Song Recital in Aid of the Berlin Winter Relief Fund, followed by Concert of Light Music relayed from the Central Hotel Burgund. **11.0** (also relayed by **Zeesen** on **31.38 metres**). Song Recital by Karl Erb: Three Petrach Sonnets (Liszt); Songs (Schubert): (a) Wehmut, (b) An die Leyer, (c) Totengräbers Heimweh, (d) Das Lied im Grünen.

BERNE.—See **Schweizerischer Landessander.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—**7.30 p.m.,** News Bulletin and Exchange Quotations. **7.40,** Talk arranged by the International Labour Bureau. **7.55,** Lottery and Charade Results. **8.0,** Talk on Wines. **8.15,** News Bulletin. **8.30,** Monsieur Alphonse—Comedy in Three Acts (A. Dumas, Fils.)

BRATISLAVA

279 metres; 14 kW.—**5.25 p.m.,** Light Music on Gramophone Records. **5.45,** Talk on Tariffs. **6.0,** See **Prague.** **6.10,** Talk: Creative Art. **6.25,** See **Prague.** **6.40,** Song Recital. **7.30,** See **Brno.** **9.0,** See **Prague.** **9.15,** Dance Music relayed from the Carlton Hotel. **10.0** (approx.), Close Down.

BREMEN. See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.**—**12.15 p.m.,** Orchestral Concert, conducted by Franz Marszalek: Selection from Countess Maritza (Kálmán); Rhythmic Foxtrot (Robrecht); Intermezzo from Glückliche Reise (Künnecke). **12.45,** Time, Weather, News and Exchange. **1.5,** Gramophone Concert of Operetta Music: Selection from The Bird Fancier (Zeller); Aria from Der Bettelstudent (Millöcker); Selection from The Mikado (Sullivan); Waltz, Du und Du, from Die Fledermaus (Joh. Strauss); Mein Herr Marquis, from Die Fledermaus (Joh. Strauss); March from The Gipsy Baron (Joh. Strauss). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Talk: Suggestions for Winter Travel in the Silesian Mountains. **2.50,** Review of Silesian Magazines. **3.15,** Talk for Children. **3.45,** Concert from **Heilsberg.** **4.30,** Agricultural Prices. **4.35,** 'Cello Recital of Brahms Music by Fritz Binnowsky: Allegretto quasi Menuetto from the Sonata in E Minor, Op. 38; Ballad, Op. 10; Intermezzo, Op. 117; Sapphic Ode; Hungarian Dance No. 18. **5.0,** Talk on Music. **5.20,** Topical Talk. **5.35,** Talk for Workers. **6.0,** Talk: Teaching and Learning Art. **6.30,** Weather and Market Prices. **6.35,** Popular Concert by the Station Orchestra. Soloist: Bruno Jagielski (Tenor). **7.20,** See **Berlin (Witzleben).** **9.0,** Time, Weather, News, Sports Notes and Programme Announcements. **9.30,** Esperanto Lesson. **9.40,** Sailors' Yarns from Polar Seas by Dr. Amadeus Grohmann. **10.0** (approx.), Close Down.

BRNO

342 metres; 35 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by Jan Janota. Soloists: Zdenka Pokorna (Songs), and J. Polásek (Violin). **4.10,** Talk for Young People. **4.20,** Programme for Children. **4.50,** Talk for Students. **5.0,** Literary Review. **5.15,** See **Prague.** **5.25,** German Transmission: News, Book Review and Talk. **6.0,** See **Prague.** **6.25,** Chromatic Accordion Solos. **6.40,** See **Bratislava.** **7.30,** On ne badine pas avec l'amour—Play (Alfred de Musset), translated by Ivanck, with Music by F. Suchy. In the intervals, Old French Music. **9.0,** See **Prague.** **9.15,** See **Bratislava.** **10.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—**12 Noon,** Gramophone Concert: Ballet égyptien (Luigini); Ce diqne vous dira (Borel-Clere); Burlesque (Marcel Poot); A Little Nest (Bill Buddie); Hungarian Dances Nos. 1, 2, 5, 6, 7, and 8 (Brahms); Le Pas des écharpes (Chaminade); Selection from Marietta (Oscar Straus); Dances from Othello (Verdi). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Little Radio Orchestra, conducted by M. Leemans: Military March (Schubert); Ballet Music from Henry VIII (Saint-Saëns); 'Cello Solo: La Cinquantaine (Gabriel-Marie); Selection from The Three Musketeers (Friml); Graziella (de Taye); Selection from a Sound Film (Heymann). **5.0,** Gramophone Records: Czardas (Grossman); Four Airs from Die Dreigroschenoper (Kurt Weill); Frühlingsstimmen (Joh. Strauss); Tatiana (Lindsay); Alsatian Peasant Dances Nos. 1 and 2 (Merkling). **5.30,** Literary Programme for Young People. **6.0,** Medical Talk. **6.15,** Escales (Ibert), on Gramophone Records. **6.30,** Orchestral Concert of Light Music, conducted by M. Leemans. **7.15,** Review for Workers. **7.30,** Sports Review. **8.0,** Orchestral Concert conducted by M. Franz André. Soloist: M. Kerschaver (Tenor). Overture, Piccolino (Guiraud); Three Dances from Nell Gwynn (German); Histoires (Ibert); Songs: (a) Mattinata (Leoncavallo), (b) Chant Hindou (Bemberg), (c) Ständchen (Schubert), (d) Der Hidalgo (Schumann); Ballet russe (Luigini); Czardas (Michiels). **8.45,** Talk: The Reduction of the Working Day in the Mines. **9.0,** Concert by the Radio Orchestra. Soloist: M. Lory (Accordion). **10.0,** Le Journal Parlé. **10.10,** Gramophone Concert, Part I: Old and Modern Dances; Part II: Symphony Music. **11.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Concert by the Small Station Orchestra, conducted by P. Leemans: Potpourri, From Seville to Triana (Lucchesi); Selection from Héroïdade (Massenet); Rhapsody in Blue for Two Pianofortes and Orchestra (Gershwin); Song without Words (Mendelssohn); Selection from Countess Maritza (Kálmán); Tango (Albeniz); Marche chinoise (Demaële). **1.0 p.m.,** Journal Parlé. **1.10,** Gramophone Concert, Part I: Sacred Music. Part II: Light Music. **5.0,** Concert by the Station Orchestra: Marche française (Saint-Saëns); Potpourri of Popular Songs (Schneider); Down South (Myddleton); Selection from Show Boat (Kern). **5.45,** Programme for Children. **6.30,** Gramophone Concert: Overture, Egmont (Beethoven); Spanish Caprice (Rimsky-Korsakov); Ballet Music from Céphale et Procris (Grétry); Kleiner Wienermarsch (Kreisler). **7.15,** Talk: Catholic Women's Organisations. **7.30,** Journal Parlé. **8.0,** Concert of Flemish Music by the Station Symphony Orchestra and Two Choirs; Conductor, Arthur Meulemans; Soloists: M. Toutenel (Baritone) and M. Steylaerts (Violin); Fantasia on Two Flemish Airs (De Boeck); Romance for Violin and Orchestra (Alpaerts); Four Old Flemish Songs by a Mixed Choir: Symphonic Poem, Leie, for Baritone, Mixed Choir, and Orchestra (Benoit). **8.50,** Catholic Review. **9.15,** Concert (contd.): Canadian Fantasia (Gilson); Waltz, Habanera (Maes); Barcarolle (Tinel); Van Veldeke Cantata (Meulemans); K.V.R.O. War Song (Meulemans); De Vlaamsche Leeuw (Miry). **9.55,** Evening Prayer. **10.0,** Journal Parlé. **10.10,** Gramophone Concert: Overture, Les Saltimbanques (Ganne); Aubade (Livschakov); Waltz, No. 2, Lulu (Claude Valny); A Week-end in the Land of Cockaigne (Armandola); Arab March (Ganne); Selection from The Gipsy Baron (Joh. Strauss); Ständchen (Helkens); Waltz from Der Freundenführer (Ziehrer); Potpourri, Metropoliana (Brinkmann); Air from The Merry Widow (Lehar); Serenade No. 2 (Toselli); March (Fucik). **11.0** (approx.), Close Down.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on **840 metres** from **5.45 to 11.0 p.m.** **4.30 p.m.,** Concert by the Imre Magyari Cigány Band. **5.15,** Programme by Johann Urbanyi. **5.45,** Pianoforte Recital by Iwan Engel: Fantasia in C Minor (Mozart); Rondo in G, Op. 21, No. 2 (Beethoven); Sonata in A Flat, Op. 110 (Beethoven); Nocturne in C Minor (Chopin); Mazurka (Chopin). **6.30,** Review of Foreign Politics. **6.45,** Coriolanus—Tragedy in Five Acts (Shakespeare), arranged for Radio. **8.30,** News. **8.40,** Orchestral Concert of Light Music. **9.30,** Weather. **10.15,** Concert by a Cigány Band relayed from the Café Spolarich. **11.0** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres, 0.75 kW.; and **KALUNDBORG, 1,153 metres,** 7.5 kW.—**11.0 a.m.,** Time and Chimes from the Town Hall. **11.5,** String Ensemble Concert, relayed from the Hotel d'Angleterre. **1.0 to 2.0 p.m.,** Interval. **2.0,** Recital of Danish Songs by Grethe Posselt: Songs (Rosenfeld): (a) Ak, I skönne stumme Fugle, (b) Hver Sommerdag jeg lytte vil; Hvis du har varme Tanker (Borresen); Songs (Emna): (a) Og er der et eneste Hjerte kun, (b) Folk Song; Sving dig kun Laerke (Meyer). **2.20,** Orchestral Concert from the Wivex Restaurant. **4.0,** Programme for Boys. **4.40,** Exchange and Fish Market. **4.50,** Talk on Aerodromes. **5.20,** English Lesson. **5.50,** Weather Forecast. **6.0,** News. **6.15,** Time Signal. **6.16,** Talk: The Dutch Church. **6.45,** Danish Lesson. **7.10,** Concert by the Station Symphony Orchestra, relayed from the State Broadcasting Building; Conductor, Nikolais Malko; Soloist, Emanuel Feuermann ('Cello); Concerto grosso No. 10 in D Minor (Handel); Concerto in D, Op. 101, for 'Cello and Orchestra (Haydn). Ten Minutes' Interval. Introduction and Waltz from The Swan Lake (Tchaikovsky); Selection from the Ballet Ruses d'amour (Glazunov); Polka from The Sleeping Beauty (Tchaikovsky); 'Cello Solos (Glazounov): (a) Chant du Ménestrel, (b) Spanish Serenade; Selection from Petroushka (Stravinsky). **9.25,** News. **9.30,** Reading. **9.50,** Dance Music from the Ritz Restaurant. In the interval at **11.0,** Time and Chimes. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**12 Noon,** Light Music on Gramophone Records. **12.30 p.m.,** News Bulletin. **12.45,** Programme for Children. **6.0 to 7.0,** Programme in English by the I.B.C.: C. Danvers Walker, R. Cheene and B. McNabb announcing. **6.0,** Orchestral Concert for Hastings Listeners: Waltz, The Blue Dannbe (Joh. Strauss); The Wedding of the Rose (Jessel); Columbine (Garland); Down in the Forest (Landon Ronald); At the Convent Gate (Johnson); Ich liebe dich (Grieg); In Pierrette's Garden (Brookes); Invitation to the Waltz (Weber). **6.30,** Military Band Concert for Eastbourne Listeners: La Grive (Cole); Viscount Nelson (Zelde); Ballad Memories (arr. Baynes); Pomp and Circumstance (Elgar); A Francesca (Costa); New Colonial March (Hall); Selection from The Country Girl (Monckton); The Thunderer (Sousa). **7.0,** Local News and Popular Music on Gramophone Records. **7.30,** Radio Gazette. **8.0,** The Listeners Half-Hour and News Bulletin. **8.30,** Concert, relayed from the Town Hall, Rouen. **10.0 p.m.** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music: For the Love of Mike; Come and have a Cuddle on the Common; This is the Day of Days; On a Cold and Frosty Morning; Honeymoon Love; Speedboat Bill; Just Once for all Time; The Pagan Serenade; Hold my Hand; Roll on Mississippi;

MARCH 9th **THURSDAY** *continued*

I've got a Feeling; The Lights of Paris; Miracle Melodies Selection; The Same as We Used to Do; Blaze Away; Sittin' on a Rainbow. **11.0,** Musical Comedy Programme: Selection from The Maid of the Mountains; Sung: Live for To-day; Duet: Farewell; Three Songs: (a) My Life is Love, (b) A Bachelor Gay, (c) Love Will Find a Way; Duet: A Paradise for Two. **11.30,** Concert of Songs: Songs of Other Days; River stay 'way from my Door; Shoo the Hoodoo away; The Empire Parade; Song Memories; There's Happiness over the Hill; Going Home; Around the Corner. **12 Midnight,** Variety Concert: Tan McTartan; The Polar Bear; A Yodelling Lullaby; Where the Rainbows Rest; The Gondolier; The World snaps its Fingers; Ha, ha; Thinking of You; When Baby cries for the Moon. **12.30 a.m. (Friday),** Concert of Songs: The First weekend in June; I'm in the Market for You; Sweet Temptation; Orchestra: My Sunshine is You; I fell for You; Just like in a Story Book; Who Cares?; Good-night Sweetheart. **1.0,** Hawaiian Duets: Alma Mia; Bone Festa; Hawaiian Twilight; Sing something Simple; Kamshamola; Three Little Words. **1.30,** Concert of Songs; Whoopee Medley; Exactly like You; I like to do Things for You; My Lover; Monte Carlo Medley; More than you Know; Swingin' in a Hammock; On the Sunny Side of the Street. **2.0,** Dance Music; Love is the Sweetest Thing; Good Morning. Mr. Sun; I'll do my best to make you Happy; The Voice in the Old Village Choir; Smile and sing your cares Away; The turning of the Tide; Where the Blue of the Night meets the Gold of the Day; Day by Day; Was that the Human thing to Do?; Good-night Vienna; She didn't say Yes; Five Minutes to Twelve; Snap your Fingers, clap your Hands; Somebody Loves You; Snuggled on Your Shoulder; Majah-General Thing-a-me-Bob. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259 metres, 17 kW.; and **CASSEL, 245.9 metres;** and **TRIER, 259.3 metres.**—**4.0 p.m.,** Ninth Concert of the Academy of Music, relayed from **Darmstadt.** The Academy Orchestra and Madrigal Society and Hedwig Fassbaender (Violin): Overture, Der Schauspieldirektor (Mozart); Four Madrigals (Petersen): (a) Sängerspruch, (b) Vor der Ernte, (c) Schnitterlied, (d) Requiem; Concerto in A for Violin and Orchestra (Mozart); Two Medleys: (a) Zuweilen narrieren (Ratgeber, arranged Noack), (b) Die Martinsgans, Op. 36 (Bodo Wolf); Little Ballet Suite for Orchestra (Bodo Wolf). **5.15,** Exchange Quotations. **5.25,** Dialogue: The Modern Educational Film. **5.50,** A Dialogue on Arbitration. **6.15,** Time, Programme Announcements, Weather, and Exchange. **6.20,** Edwin Erich Dwinger discusses his own Books. **6.35,** Mandoline Concert: Eröffnungs-Festmarsch (Fries); Paraphrase on the Song Das Bild der Rose (Ritter); Fairy Tale Overture (Eilender); Nachtfalter (Mandt); Paraphrase on the Song Aeuncben von Tharau (Schamo); March, Old Comrades (Teike). **7.0,** Talk: The Reclamation of the Zuyder Zee. **8.0,** Gramophone Concert of Popular Music. **8.30,** See **Stuttgart. 9.0,** Time, News, Weather, and Sports Notes.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse); **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.**—**6.0 p.m.,** Health Talk: A Discussion with the School Doctor. **6.25,** Weather. **6.30,** Armins, der Cheruskor (Arminius, the Cheruscian)—Historical Radio Play (Hans Heyck). **7.30 (from Bremen),** Organ Recital by Gottfried Gallert, relayed from North-east Friesland: Prelude and Fugue in D (Bach); Variations on an Old Choral (Helm). **8.0,** Concert by the Chamber Orchestra, conducted by Gerhard Maasz. Soloist, Bernhard Yakschtat (Bass-Baritone). Max und Moritz (Zimmer); Humoresque (Vreuls); Songs from Jobsiade (Roth); Intermezzo from Comedy Music (Maasz); Ständchen from Julchen (Sörnsen); Burlesque (Schmitt). **8.30 (from Kiel),** Literary Programme (Wilhelm Busch), by Hans Balzer; Der Nöckergreis; Am Vorabend von Roses Geburtstag; Four Small Pieces: (a) Ganz unverhofft auf einem Hügel, (b) Es hat einmal, (c) Ein dicker Sack, (d) Auf leichten Schwingen; Extracts from Ednards Traum. **9.20,** Topical Talk. **9.30,** Dance Music by the Chamber Orchestra, conducted by Gerhard Maasz. In an interval at **10.20,** Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW; and DANZIG, 453.2 metres.—**12.5 to 1.30 p.m.,** Gramophone Concert of Variety Music. In the interval at **12.20 p.m.,** News Bulletin. **2.0,** Market Prices. **2.30,** Talk for Young People: Catching Wild Animals in the Primitive Forests of Liberia. **3.0,** Concert by the Little Orag Orchestra, conducted by Eugen Wilcken: Overture, King Stephen (Beethoven); Barcarolle (Grünfeld); Romance, Op. 51, No. 5 (Tchaikovsky); Selection from The Cricket on the Hearth (Goldmark); Andante from the Violin Concerto in E Minor (Mendelssohn); Romance from the Violin Concerto in E Minor (Wieniavsky); Liebeswalzer (Moszkovsky). **4.45,** Talk: Heroic Deeds of the East Prussian Regiment in the First Three Weeks of the War, 1914. **5.15,** Market Prices. **5.20,** Ice Report. **5.30,** Agricultural Talk. **6.30,** Elementary English Lesson. **7.0,** Weather and News. **7.10,** Abschied von der Liebe—Play (Hans Kayser). **8.10,** Masters of their Crafts on Gramophone Records, George Kulenkampff: Fugue in A for Violin (Tartini-Kreisler); Adolf Busch (Violin): Charconne (Bach); Gaspar Cassado ('Cello): Concerto in A Minor for 'Cello and Orchestra from the Sonata for Pianoforte (Schubert, arr. Cassado); Vasa Prihoda (Violin); Waltz in A (Dvorák-Prihoda); Erica Morini (Violin): Andalusian Romance (Sarasate); Serie Kussewitzky (Double Bass): (a) Minuet in G (Beethoven), (b) Valse miniature (Kussewitzky); Henri Marteau (Violin); Carmen Fantasia (Sarasate); Pablo Casals ('Cello): Gavotte tendre (Hillemacher); Arnold Földesy ('Cello); Chanson villageoise (Popper); Jacques Thiband (Violin); Waltz (Brahms); Josef Szigeti (Violin); Slav Dances in E Minor and G Minor (Dvorák-Kreisler). **9.15,** Weather, News and Sports Notes.

HILVERSUM

Announced **HUIZEN; 296.1 metres;** 20 kW.; (7 kW up to **4.40 p.m.**).—**11.55 a.m. to 1.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **11.55,** Concert by the K.R.O. Orchestra, conducted by Johan Geritsen: Overture: Die Abreise (d'Albert); Selection from Cavelleria Rusticana (Mascagni); Selection from Tiefland (d'Albert); Berceuse (Iljinsky); Mazurka (Scriabin); Barcarolle (Arensky); Pas des fleurs (Delibes); Rakoczy Overture (Kéler Béla); Selection from Les Saltimbanques (Ganne); Waltz, Acceleration (Joh. Strauss); Le canari (Poliakin); March, Onze jougens (van Leeuwen); Gramophone Records in the Interval. **1.40** till Close Down, Programme of the Christian Radio Society (N.C.R.V.). **1.40,** Relay of a Political Assembly: Addresses and Music. **3.40,** Bible Reading and Sacred Music. **4.40,** Bass-Baritone Song Recital by P. Brederode: Soll's sein, so sei's (J. W. Franck); Gib dich zufrieden (Bach); Aria from Joshua (Handel); Aria from St. Paul (Mendelssohn); Wir werden ruh'n (Rachmaninov); Der Wanderer (Schubert); Der Lindenbaum (Schubert); Freisinn (Schumann); The Two Grenadiers (Schumann); Gramophone Records, Four Dutch Songs. **5.25,** Handwork Lesson for Young People. **5.55,** Talk. **6.25,** Dressmaking Lesson. **6.40,** Weekly Review. **7.10,** Police Notes. **7.25,** Religious Address. **7.55,** William the Silent—Cantata (Goldschmeding), in Memory of William the Silent, relayed from the Mathieneser Kerk, Rotterdam; A Children's Choir, conducted by E. Leydekker; A Boys' Choir, conducted by J. Blok, and an Orchestra, conducted by P. Jordaans; Soloists: A. de Zeeuw Slierendrecht (Soprano); J. Pouse (Baritone); G. Goldschmeding (Pianoforte), and C. Nogarede (Organ). **8.40,** Religious Address (contd.). **9.20,** Religious News. **9.30,** News Bulletin. **9.40,** Organ Recital by Leo Mens with Oboe Solos by Jaap Stotyn relayed from St. Peter's Church, Leyden. **10.40,** Variety Music on Gramophone Records. **11.10** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM; 1,875 metres;** 8.5 kW.—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.41 a.m.,** Concert by the Station Orchestra, conducted by Nico Treep: March, Einzug der Gladiatoren (Fucik); Overture, Die Felsenmühle (Reissiger); Selection from Cavalleria Rusticana (Mascagni); Romantic Waltz (Heinecke); Selection from The Gipsy Princess (Kálmán); Berceuse from Jocelyn (Godard); Macht Platz der Jugend (Leopold); Im Rosengarten Mendelssohn (Urbach); Waltz, Wiener Kinder (Strauss); March, Wien bleibt Wien (Schrammel). **1.55 to 2.10,** Interval. **2.10,** Concert (contd.): Torch Dance of the Brides of Kashmir, from Feramors (Rubinstein); Selection from Turandot (Puccini); In a Hong-Kong Street (Humphries); Serenade (Titl); Sambre et Meuse (Turlet). **2.40,** Talk. **3.25,** Popular Music on Gramophone Records. **3.40,** Talk. **4.10,** Pianoforte Recital by Jaap Brill. **4.40,** Programme for Children. **5.10,** Light Orchestral Concert, with Songs by Bob Scholte. **6.10,** Sports Talk. **6.40,** Light Orchestral Concert (contd.). **7.10,** English Lesson. **7.40,** Time Signal. **7.41,** Gramophone Concert of Variety Music. In the interval, News. **7.55,** Concert, relayed from the Concertgebouw, Amsterdam. The Concertgebouw Orchestra, conducted by Pierre Monteux. Soloist, Darius Milhaud (Pianoforte). **10.10,** A Musical Comedy. **11.10,** Light Music on Gramophone Records. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.0 p.m.,** Sports Notes. **6.15,** Announcements and Gramophone Records. **6.25,** Report for Boy Scouts. **6.30,** See **Warsaw. 10.0,** Dance Music from the Café Astoria.

KAUNAS

1,935 metres; 7 kW.—**6.30 p.m.,** Märchenerzählungen (Schumann). **7.0,** Talk on Weaving. **7.20,** Variety Programme. **7.50,** Reading in Esperanto. **8.10,** Concert: Overture, Simiramis (Rossini); Fantasia, Ein Fest in Aranjuez (Demerssemann); Waltz, Du und Du (Joh. Strauss); Suite, Exotic Impressions (Manton); Japanese Bell Dance (Yoshitomo). **9.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres; 40 kW., and **HELSINKI, 368.1 metres.**—**6.5 p.m.,** Song Recital by Elli Vilho: Air from Samson and Delilah (Saint-Saëns); Ich liebe dich (Grieg); Song (Melartin); Two Songs (Klemetti); Polska (Palmgren); Air from Orpheus (Gluck). **6.30,** Talk. **6.50,** Pianoforte Recital by Margaret Kilpinen. **7.15,** A Visit to Leather Works. **7.45,** News in Finnish. **8.0,** News in Swedish.

LANGENBERG

473 metres; 60 kW.—**12 Noon,** Concert conducted by Wolf. Overture, Hans Heiling (Marschner); Waltz, Donauweibchen (Joh. Strauss); Selection from The Magic Flute (Mozart); Suite, The Fables of La Fontaine (Mouton); Prairie Roses (Poldini); Walzerfreude (Provaznik); Selection from Der Bettelstudent (Millöcker); In einem chinesischen Theater (Dreyer); Japanese Bell Dance (Yoshitomo); Potpourri, Quintessenzen (Morena); March, Furchtlos voran (Halwas). In an interval at **1.0 p.m.** (approx.), Announcements. **1.30,** Sponsored Programme with Gramophone Records. **2.30,** Economic Notes and Time Signal. **2.50,** Programme for Children. **3.20,** Notes on the Broadcasts for Schools. **3.25,** Educational Talk. **4.0,** Concert conducted by Eysoldt: Overture, Alphonso und Estrella (Schubert); Suite, Prometheus (Beethoven); First Suite, Liebeslieder-Walzer (Brahms); Largo from the Fifth Symphony (Dvorák); Selection from The Cricket on the Hearth (Goldmark); Ein Immortellenkranz auf das Grab Lortzings (Rosenkranz). **5.20,** French Conversation. **5.45,** Weather, Time, Economic Notes and Sports Forecast. **6.0,** Reading. **6.20,** Talk on the Feminist Movement. **6.30,** Talk: Industry in the Rhineland, Westphalia, and the Hanseatic Districts. **6.55,** Announcements. **7.0,** In the Moonlight. Orchestral and Choral Concert, conducted by Buschkötter and Zimmermann. Soloists: Hansen (Soprano), Guermanova (Contralto), Strienz (Bass), and Grape (Pianoforte). Overture, The Merry Wives of Windsor (Nicolai); Movement from the Moonlight Sonata (Beethoven); Serenade (Mozart); Die verklärte Nacht (Schönberg); Songs and Choruses; Reading of Poems by Goethe, Hölderlin, Claudius, Droste-Hülshoff, and Morgenstern. In the interval, Our Neighbour, the Moon—an Instructive Sketch (S. Christoph). **9.15,** Announcements, Educational Notes and Sports Notes. **9.30,** Serenade and Dance Music, conducted by Eysoldt. **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN, 319 metres.**—**11.5 a.m.,** Gramophone Concert: Waltz, Träume auf dem Ozean (Gungl); March, Mit Standartem (Blom); Hunters' Chorus, from Der Freischütz (Weber); Old English Dances of Shakespeare's Day; Four German Dances (Mozart); Donausagen (Fucik); Intermezzo, Pierrot and Pierrette (Husch); Potpourri of Songs of the Highroad; Overture, Lord Spleen (Lothar); Moonlight Serenade (von Platen); Solvieg's Song (Grieg); Dance of the Marionettes (Winternitz); Zapfenstreich im Biwak (Becker); In a Clock Store (Orth); Potpourri of Bavarian Melodies. **12 Noon,** News, Weather, Snow Report, and Time. **12.15 p.m.,** Gramophone Concert: Theme with Variations from the Sonata in D for Violin and Pianoforte (Beethoven); Neapolitan Serenade (Sgambati); Cavatina and Scherzo from the String Quartet in A Minor, Op. 37 (Bleyle); Liebestraum No. 3 (Liszt); Berceuse (Chopin); Canzonetta (d'Ambrosio); Sarabande (Bach); Air (Bach); Adagio from the Sonata in E Minor for Zither (von Reigersberg); Andantino from the Concerto in D Minor for Zither (von Reigersberg); Adagio cantabile and Rondo from the Sonatina in C Minor, Op. 13 (Beethoven). After the Concert, Exchange Quotations. **1.0,** Film Review. **1.30,** Talk: Practical Results of the School Courses for Unemployed. **2.0,** Talk: Stromboli. **2.35,** Exchange and Market Prices. **3.0,** Concert by the Emdé Orchestra: Overture, Masaniello (Auber); Waltz, Wiener Bonbons (Joh. Strauss); Czardas, Der sohn der Heide (Keler-Bela); Memories of Grieg (Urbach); Dornröschens Brautfahrt (Rhode); Trilmërei (Schumann); Two Cossack Dances (Sternberg); Waltz Intermezzo, Ein Ballnachtstraum (Translateur); Potpourri, Vom deutschen Walde (Gaudert); Waltz, Dorfschwalben aus Oesterreich (Josef Strauss); March, Deutsche Eichen (Blatzheim). **4.30,** Weather and Time. **4.50,** Exchange Quotations. **5.0,** Health Talk. **5.15,** Talk for Taxpayers. **5.30,** Spanish Lesson. **5.50,** Talk: Scientific Work. **6.5,** Talk: The Protection of the Worker in Modern Industrial Concerns. **6.30,** Concert of Folk Music: Zither Solos: (a) Erinnerung (Kollmansek), (b) Gavotte, Frauenherzen (Stelzl), (c) Polka, Vöglein in den Zweigen (Obermeier); Six Pieces for Mandoline: (a) Capriccio (d'Arienzo), (b) Serenata (Sylvester), (c) Al Mandolino (Nölck), (d) Wiegenlied (Pressmann), (e) Pierrot Sérenade (Randegger), (f) Zigeunerweisen (Francass); Minuet (Sai); Guitar Solo, Mandolinata (Albert). **7.30,** See **Berlin (Witzleben). 8.45,** Pianoforte Recital by Otto Weinreich: Sonata appassionata in F Minor, Op. 57 (Beethoven); Prelude and Fugue in E Flat, Op. 26 (Kögler). **9.15,** News Bulletin and Silent Night.

LINZ.—See **Vienna.**

LWOW

381 metres; 16 kW.—**6.0 p.m.,** Literary Talk. **6.15,** Miscellaneous Items. **6.30 to 9.15,** See **Warsaw. 9.15,** Relay of Foreign Stations. **9.55 to 10.0,** See **Warsaw. 10.0,** Dance Music from the Bagatela Variety Theatre. **11.0** (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South-East. **8.30,** Popular Concert, conducted by Gaston Billet. Soloists: Mme. Stradella (Soprano) and M. Georges Rambaud (Tenor). After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAQ); 30.43 metres; 20 kW.—**10.30** till Close Down, Programme arranged by the Spanish-American Radio Society. Details to be announced.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, Programme for Children and Request Gramophone Records. **8.15,** News Bulletin and Political Review. **8.30 to 9.0,** Interval. **9.0,** Linguaphone English Lesson. **9.30,** Chimes, Time Signal, Political Review, Talk on Astronomy and Band Concert, relayed from the Hotel Nacional. **11.45,** News Bulletin. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**5.0 p.m.,** Light Music on Gramophone Records. **5.15,** See **Prague. 5.30,** German Transmission: Talk on Karl Marx, and Readings. **6.0,** See **Prague. 6.25,** Medical Talk: Cancer. **6.40,** Concert of Popular Music by the Station Orchestra, conducted by B. Tvrdy. **7.30,** See **Brno. 9.0,** See **Prague. 9.15,** See **Bratislava. 10.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**4.30 p.m.,** Literary Programme: Anecdotes about Famous People. **5.30,** Concert, relayed from the Conservatoire. **8.0,** Talk in French; International Women's Day.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg and Kaiserslautern, 560 metres;** and **Nurnberg, 239 metres.**—**4.0 p.m.,** See **Langenberg. 5.15,** Scientific Report. **5.35,** Agricultural Talk. **5.55,** Time, Weather, and Agricultural Notes. **6.5,** Talk: A German Discovery—the Diesel Motor. **6.25,** A Tour through the Gross Rachelhof (founded 1435) in Grassau am Chiemsee with Otto Willi Gail, Dr. Karl Hoffmann, Georg Sichler, the Zither Club, and the Grassau Choral Group and Musical Society. **7.5,** Orchestral Concert, conducted by Karl List. Soloist: Marcel Wittrisch (Tenor). Part I: Prelude to Don Gil von den grünen Hosen (Braunfels). Songs (R. Strauss); (a) Cäcilie, (b) Morgen; Capriccio (Piechler); The Flower Song from Carmen (Bizet); Mazurka from Coppélia (Delibes); Arias from: (a) Martha (Flotow), (b) Madame Butterfly (Puccini). Part II: Old English Suite after Sixteenth Century Composers (Max Ettinger): (a) Walsingham (Byrd), (b) Wolseys Wilde (Byrde), (c) The Mayden's Song (Byrde), (d) Why aske you? (Anon.), (e) The Bells (Byrde), (f) The King's Hunt (Bull). Part III: Music by Lehár: Overture, Eva; Hab' ein blaues Himmelbett from Frasquita; Gern' hab' ich die Frau'n geküst from Paganini; Wieber-

Marsch; Maiden, my Maiden, from Frederica; You are my Heart's Delight, from The Land of Smiles. 8.40 (from **Nürnberg**), March Days—a Radio Sequence. 9.20, Time, Weather, News, and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1.083 metres; 60 kW. Relayed by **Fredriksstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres;** and **Rjukan, 447.1 metres.—4.0 p.m.,** Relay of European Stations. 5.0, German Lesson. 5.30, Religious Address. 6.0, Announcements. 6.30, Pianoforte Recital by Mme. Lilli Kraus: Ballad in A Flat (Chopin); Prelude in A Minor (Debussy); Tarantella (Liszt). 7.30, Sacred Concert, relayed from the Fagerborg Church. Mme. Solveig Sandvold (Songs) and M. Reidar Hansen (Organ). 8.25, Talk on Poultry Keeping. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Relay of European Stations. 11.0 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—7.0 p.m., Dopolavoro Notes; Agricultural Report and Giornale Radio. 7.20, Popular Music on Gramophone Records; In an interval at 7.30, Time and Announcements. 7.45, Concert of Operetta Music: Selection from (a) The Dollar Princess (Fall), (b) Boccaccio (Suppé). 8.30, Un caprice: One-act Comedy (de Musset), arranged for Radio by Enzo Ferrieri. 9.0, (approx.), Concert of Operetta Music (contd.): Selection from Frasquita (Lehár); Selection from Acqua cheta (Pietri). 9.55, News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—Time Signals (on 2,650 metres) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals.)—**5.45 p.m.,** Le Journal Parlé. 7.20, Weather Report. 7.30, Gramophone Concert: Selection from The Barber of Seville (Rossini); Aria from The Thieving Magpie (Rossini); Viennese Potpourri (Komzák); Im Prater blühen wieder die Bäume (Stolz); La fleur que nous aimons (Crémieux-Gaël); Tales from the Vienna Woods (Joh. Strauss); Selection from Schön ist die Welt (Lehár); Glow-worm Idyll (Siede); Parade of the Marionettes (Kuhn); Pinsonnette et Pinson-net (Saint Servain); Echoes du vallon (Saint-Servain); Le Loup (Progin); Le rallye Bonnelles (Progin); Les Echoes de Villebois (Vivey); Les echos champêtres (Vivey); The Gladiators' Farewell (Blankenburg); March, Old Comrades (Teike). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. 7.0, Programme for Children. 7.30, Gramophone Concert of Light Music. 8.0, Agricultural Talk. 8.5, Talk by the Vicomte Henry de France. 8.15, Interval. 8.30, Dramatic Programme. 10.30 (approx.), Close Down.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Escales (Ibert), on Gramophone Records. 8.0, Press Review and Weather. **12 Noon,** Protestant Address. **12.30 p.m.,** Concert: Part 1: For Young People: Le Roman d'Arlequin (Massenet); Two Songs (Dalcroze) on Gramophone Records; Pussy Dance (Delmas); The Sewing Machine (Colantuoni); Two Songs (Patroni-Casadesus) for Children's Choir and Soloist, on Gramophone Records. Part II: Operetta and Film Music: Selection from Sidonie Panache (Szulc); Two Airs (Romans and Gregson); Two Melodies from White Horse Inn (Stolz-Benatzky) on Gramophone Records; Selection from Yes (Yvain). In the interval at **1.0 p.m.,** Exchange, News and Weather, and at **1.30,** Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 5.45, Agricultural Notes. 6.0, Address relayed from the Reformed Church, Passy. 7.0, A Dialogue. 7.20, Orchestral Concert: Pavane from Proserpine (Saint-Saëns); Divertissement and Musette (Samazeuilh); Esquisses chorégraphiques (Maréchal). 7.45, Review of the German Press. 8.0, Madame Sans Gêne—Comedy (Sardou). In the intervals at 8.30, News and Weather, and at 8.40, Review by Dominique Bonnaud. 9.15, Press Review and News. 9.30, Gramophone Records: Arabesque (Debussy); La Source (Hasselmans); Aria from The Fair Maid of Perth (Bizet); Two Arias from The Pearl Fishers (Bizet); The Two Grenadiers (Schumann); The Trout Quintet (Schubert).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.—9.0 p.m.,** Work-a-day Thoughts. 9.5, Business News. 9.15, Ethel Miller Exley (Pianist). 9.30, Weather Report. 9.32, Market Reports. 9.45, Pianoforte Interlude. 9.53, David Lawrence Dispatch. 9.58, Programme Announcements. 10.0, Programme to be announced. **10.15 to 11.15, New York** Relay. 10.15, The Adventures of Dr. Doolittle. 10.30, The Singing Lady. 10.45, Little Orphan Annie. 11.0, Our Daily Food—George Rector's Cooking School. 11.15, Time Signal. 11.16, Weather Report. 11.17, Teaberry Sport Review. 11.22, Press News Reeler. 11.27, Strange Facts. 11.29, Temperature Report. 11.30, KDKA Orchestra. 11.45, To-day's News by Lowell Thomas. **12 Midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m. (Friday),** Programme to be announced. 12.30, The Fireflies. 12.45, The Townshend Murder Mystery. **1.0 to 3.30, New York** Relay. 1.0, Captain Diamond's Adventures. 1.30, Time Signal and Rin Tin Tin Thrillers. 1.45, Thurston, the Magician. 2.0, Death Valley Days. 2.30, Len Joy's Dancing Strings. 3.0, Wilfred Glenn (Basso). 3.15, Vic and Sade. 3.30, The 1933 Income Tax by Robert L. Wickline. 3.45, Bradley Kincaid, from **New York.** 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News Flashes. 4.20, Bertha Schmid (Soprano). 4.30, Josef Lhevinne (Pianist), from **New York.** 5.0, KDKA Artist Bulletin. 5.2, Smith Ballew and his Orchestra. 5.30, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See **Brno.** 4.10, Talk on Economics. 4.20, See **Brno.** 4.50, Variety Music on Gramophone Records. 5.5, Talk on Poultrykeeping. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission: Review of New Books and Agricultural Report. 6.0, Chimes. 6.1, News Bulletin. 6.10, English Conversation. 6.25, Talk on Music. 6.40, See **Moravska-Ostrava.** 7.30, See **Brno.** In the interval at 8.0, Time Signal. 9.0, Time Signal. 9.1, News Bulletin. 9.15, See **Bratislava.** 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.—5.0 p.m.** (from **Geneva**). Sports Talk. 5.20 (from **Geneva**), Esperanto Talk. 5.35 (from **Lausanne**), Italian Lesson. 6.0 (from **Lausanne**). Weather, Announcements, and Answers to Correspondence. 6.30 (from **Lausanne**). Theatre Notes. 7.0 (from **Lausanne**), Concert by a Mixed Choir. Soloist: Mlle. Piccard (Mezzo-soprano). 7.25 (from **Lausanne**). Humorous Programme. 7.35, Choral Concert. 8.0, Concert by the Station Orchestra. 9.0, News Bulletin and Weather Forecast. 9.10 (from **Geneva**), Talk: The Work of the League of Nations. 9.30 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—**8.30 p.m.,** Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes and News. 9.30, Reading. 10.0, Concert by the Station Quartet, followed by Arias and Popular Music on Gramophone Records.

RIGA

525 metres; 15 kW.—**6.10 p.m.,** Weather Forecast. 6.15, Tenor Recital of Leonids Wigner's Songs. 7.20, Concert of Lehár Operetta Music. Conductor: Prof. Medins: Selection from The Merry Widow; Waltz from The Count of Luxembourg; Operetta Potpourri. 8.0, Weather and News. 8.15, Songs and Duets (Lehár). 8.35, Lehár Concert (contd.): Prelude to Eva; Selection from Paganini; Waltz from Gipsy Love; Selection from The Czarevitch (Lehár). 9.30 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres;** and **2RO, 25.4 metres.—7.0 a.m.,** Gymnastics. **7.15 to 7.30,** Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. **12 Noon,** Time and Announcements. 12.2 **p.m.,** Humorous Item. **12.5 to 1.15 p.m.,** Concert from **Turin.** In the interval from **12.30 to 12.45,** Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. **4.30 to 5.15,** Orchestral Concert. Uno strano modello (Escobar); Waltz (Grok); Selection from Il vassallo (Smareglia); Pianoforte Solo, Butterflies (Olsen); Turkish March (Beethoven); Pianoforte Solo, Tarantella (Martucci); Oriental Cradle Song (Takaos); Song (Heymann). 6.10 **(Naples),** Shipping and Sports Notes. 6.15, Agricultural and Dopolavoro Notes. 6.20, Giornale Radio. 7.0, Time and Announcements. 7.2, Talk. 7.15, Gramophone Records of Light Music. 7.30, Sports Notes and Tourist Report. 7.45, Symphony Concert, conducted by Alceo Toni. In the intervals: Talk on Literature and Art and Theatre Notes. 9.55, News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.—12 Midnight,** Mr. Twister, from **New York. 12.15 a.m. (Friday),** Stock Reports. **12.30 to 3.0, New York** Relay. 12.30, Van and Don—Comedy Team. 12.45, The Goldbergs—Comedy Sketch. 1.0, Fleischmann Hour: Vallee's Orchestra. 2.0, Capt. Henry's Show Boat. 3.0, Lucky Strike Hour, from **New York,** followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW; **BASLE, 244.1 metres;** and **BERNE, 245.9 metres.—11.28 a.m.,** Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Popular Music on Gramophone Records. **12.35 to 12.45 p.m.,** Weather and Exchange. 2.30 (from **Basle**), Programme for Women. 3.0, Concert by the Radio Orchestra. 4.0, Variety Music on Gramophone Records. **4.30 to 4.35,** Weather. 5.30 (from **Basle**), Talk: Giacomo Casanova. 6.0, Time, Weather and Traffic Report. 6.15 (from **Basle**), Italian Conversation Lesson. 7.0 (from **Basle**), Wind Instrument Concert by the Mulhouse Chamber Music Society. 8.30, Weather and News. 8.40 (from **Basle**), Old Swiss Songs to the Spinet; Hans Visscher van Gaasbeek (Tenor) and Martha Hamm-Stoecklin (Spinet). 9.15 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres, 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.—4.5 p.m.,** Divine Service from **Malmö, 231 metres.** 4.30, Programme for Children. 4.45, Variety Music on Gramophone Records. 5.45, Elementary English Lesson from **Jonköping, 201.3 metres.** 6.15, Weather and News. 6.30, Choral Concert, conducted by Gabriel Graener. 7.0, Talk by the Prime Minister: The Tax on Inherited Property. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 p.m.,** Gramophone Records (Beethoven): (a) Symphony No. 3 in E flat, (b) Quartet in G. **12.45 p.m.,** News. 1.0, Time and Exchange. 1.5, Gramophone Concert of Light Music. 2.0, Programme for Children. 3.0 to 4.15, Interval. 4.15, French Education Lesson. 4.30, Programme for Children, relayed from **Bordeaux-Lafayette.** 6.0, Talk in German: How Unity was achieved in France. 6.15, Talk for Women. 6.30, Orchestral Concert, conducted by M. Roskam: March from Gasparone (Millöcker); Waltz, Un doux poème (Waldteufel); Intermezzo, In the Shadows (Finck); Overture, Norma (Bellini); Selection from Mignon (Thomas); Andante for 'Cello and Pianoforte (Monfeuillard); Salut d'amour (Elgar); Selection from White Horse Inn (Benatzky). 7.30, Time and News. 7.45, Light Music on Gramophone Records. 8.20, Lottery Results. 8.30, Orchestral Concert, conducted by Maurice de Villers; Soloists: Mlle. Kaufmann (Harp) and M. Caron (Oboe): Second Symphony (Beethoven); Oboe Solo, Concerto Grosso No. 10 (Handel); Orchestral Suite from Pelleas et Mélisande (Fauré); Pieces for Harp (Fauré); Elegy for 'Cello and Orchestra (Fauré); Orchestral Suite, Dolly (Fauré). 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.—12.15 p.m.,** Time, News, Weather and Programme Announcements. 12.30, Concert from **Langenberg.** 1.0, Concert arranged by the Post Office. 1.30, Spanish Lesson. 2.0, English Lesson for Beginners. 2.30, Programme for Children. **3.30 to 4.0,** Interval. 4.0, See **Langenberg.** 5.5, Time, Weather and Agricultural Notes. 5.15, Psychological Talk: Are there too many Human Beings? 5.40 (from **Mannheim**), Talk: Power Works on the Rhine. 6.5, Time and News. 6.15, Talk: The First Ascent of the Bietschhorn in the Bernese Alps. 6.35, See **Frankfurt.** 7.0, Concert of Old Dances and Marches by the Stuttgart Philharmonic Orchestra, conducted by Emil Kahn. 7.30, See **Berlin (Witzleben).** 8.30, Symphony in C (the Jupiter) (Mozart), by the Stuttgart Philharmonic Orchestra. 9.0, Time, News, Weather and Programme Announcements.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—**6.0 p.m.,** News Bulletin. 6.15, Operetta Music: Selection from La Vie Parisienne (Offenbach), Entr'acte from Brummel (Hahn); Selection from The Bayadere (Kálmán). 6.30, Programme for Children. 7.0, Music of the Argentine. 7.15, Racing Results, Market Prices and News. 7.25, Local News Bulletin. 7.30, Chansonnettes. 7.45, Nocturne, from La Navarraise (Massenet); Melody (Pilvestre); Ständchen (Schubert). 8.0, Opera Music: Airs from: (a) Werther (Massenet), (b) Rigoletto (Verdi), (c) L'Attaque du Moulin (Bruneau). 8.15, Symphony Concert: Overture, Light Cavalry (Suppé); La Poupée d'Arlequin (Darcy); In the Blue Hawaiian Waters (Ketelbey); Valse lumineuse (Ganne); Adagietto from the Fifth Symphony (Mahler). 8.45, Extracts from Il est charmant (Moretti). 9.15, Music by a Viennese Orchestra. 9.45, Concert. Part I—Opera Music: Cavatina from Der Freischütz (Weber); Air from La Favorita (Donizetti); Romance from Tannhäuser (Wagner). Part II—Popular Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco: Le Rouet d'Omphale (Saint-Saëns); Song from Les Cloches de Corneville (Planquette); Violin Solo; Tambourin chinois (Kreisler); Les larmes de la vie (Dequin); Selection from Rigoletto (Verdi); Accordion Solo: Donna Clara (Petterburski). 11.0, Operetta Music. 11.15, Hunting-horn Melodies. **11.30 to 12 Midnight,** Programme in English by the I.B.C. H. K. Hitchcock announcing. 11.30, Dance Music and Vocal Refrains: You've got me in the palm of your hand; Sheltered by the Stars; I'll always be true; Sweethearts for ever; Three's a Crowd; Life's Desire; One Hour with you; We'll always be Sweethearts. 11.57, I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Friday),** Musical Programme. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**4.10 to 6.0,** See **Turin.** 6.0, Variety Music on Gramophone Records. 6.20 till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.—4.10 to 5.0 p.m.,** Orchestral Concert: Selection from Izeyl (d'Albert); Carnival (Lindner); Russian Fantasia: Halloh Moscow (Grothe); Prelude (Rachmaninow). 5.35, Giornale Radio; Dopolavoro and Agricultural Notes. 6.0, Songs and Light Music on Gramophone Records. 6.20, Giornale Radio. 6.30, Time, Announcements and Gramophone Records of Variety Music. 7.0, Giornale Radio, Weather and Gramophone Records (contd.). 7.25, Reading from and Commentary on the Fourteenth Canto of the Inferno. 8.0, Relay of an Opera; In the intervals: Talk; Literary Review and Giornale Radio.

VATICAN CITY

19.81 metres (Morning) and **50.26 metres (Evening);** 10 kW.—**10.0 to 10.15 a.m.,** Religious Information in French. 7.0 to 7.15 **p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.—2.35 p.m.,** Brahms Concert by a Vocal Quartet. Zoë Trasch-Fornacher (Soprano), Isolde Riehl (Contralto), Lambert Haselbrunner (Tenor), and Eleonor von John (Bass). An die Heimat; Sehnsucht; Nächtens; Gang zum Liebchen; Der Abend; O schöne Nacht; Rimmel strahlt so helle und klar; Rote Rosenknospen Brennnessel steht am Wegesrand; Liebe Schwalbe; Kleine Schwalbe. 3.5, Programme for Children. 3.25, Talk: Humanity and the Care of the Sick. 3.45, Report in Esperanto on Austria. 4.0, Gramophone Concert. Overture, The Barber of Seville (Rossini); Symphony in D—the Clock (Haydn); Symphony No. 35—the Haffner (Mozart). 5.10, Talk for Women: The Centenary of the Death of Rahel Varnhagen. 5.35, Talk for Workers. 6.0, Theatre Notes. 6.5, Talk: Do you know . . . ? 6.25, Time, Weather and Programme Announcements. 6.35, Talk: Travel Impressions of India. 7.5, See **Munich.** 8.40, News, Weather and Announcements. 8.55, Snow Report. 9.10, Variety Concert, relayed from the Oase Restaurant.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Bugle Call from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Popular Music on Gramophone Records. 11.30, Weather Forecast. 11.35, Nineteenth Concert for Schools by the Warsaw Philharmonic Orchestra, conducted by B. Wolfstal. Soloist: Mme. Mokrzycka (Soprano). Overture, Rosamund (Schubert); Scherzo from A Midsummer Night's Dream (Mendelssohn); March from Athalie (Mendelssohn). Songs: (a) Ständchen (Schubert), (b) Heidenröslein (Schubert), (c) Der arme Peter (Schumann), (d) The Swan (Grieg), (e) Easter (Grieg), (f) Three Songs from the Peer Gynt Suite (Grieg); Prayer and Temple Dance from Olav Trygvason (Grieg). 1.0 to 2.10, Interval. 2.10, Announcements. 2.15, Economic Notes. 2.25, Light Music on Gramophone Records. 2.35, Talk for Women. 2.50, Light Music on Gramophone Records. 3.25, French Lesson. 3.40, Talk: Protective Colouring in the Animal Kingdom. 4.0, Sonata in F Minor, Op. 57 (Beethoven) on Gramophone Records. In the interval, Announcements. 4.40, Topical Talk. 4.55, Programme Announcements. 5.0, Talk on Polish Literature. 5.20, Current Events. 5.25, Light Music. 6.0, Miscellaneous Items. 6.20, Agricultural Report. 6.30, Reading. 6.45, Radio Journal. 7.0, Concert of Ukrainian Music by the Lysenko National Choir. In the interval, Sports Notes and Radio Journal. 7.55, Concert of Light Music by the Station Orchestra, conducted by S. Nawrot. 10.0, Aviation Weather Report and Police Notes. 10.5, Dance Music.

ZURICH.—See **Schweizerischer Landessender.**

MARCH 9th **THURSDAY** *continued*

FRIDAY
MARCH THE TENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Light classical concert. Mr. S. B. P. Mais: "S.O.S." "Serenade," orchestral programme.
LONDON REGIONAL	Percy Pitt Memorial Concert. "The Fall of the House of Usher," a play, after E. A. Poe, by P. Creswell and B. Burnham.
MIDLAND REGIONAL	Choral programme. Light music.
NORTH REGIONAL	Orchestral concert from Birkenhead. Leeds Philharmonic concert.
WEST REGIONAL	Concert from the Town Hall, Pontypridd.
SCOTTISH REGIONAL	"Scottish Road Songs, a singing pilgrimage in Albyn," by A. M. Dunnett.

ABROAD

BRUSSELS (No. 1)	8 p.m. Military Marches and Songs of the Time of the Consulate and First Empire.
BRUSSELS (No. 2)	9 p.m. String quartet concert (Haydn, Grieg, and Beethoven).
COPENHAGEN	9.20 p.m. Viennese music, by the Station Orchestra.
HAMBURG	7 p.m. Brahms Concert, by the Hamburg Teachers' Choir and Philharmonic Orchestra.
HEILSBERG	7.10 p.m. The Resurrection Cantata (Otto Besch), from the Town Hall, Königsberg, with the Opera House Orchestra and Music Academy Choir.
LEIPZIG	6.35 p.m. A French Horn Quartet.
PARIS (Poste Parisien)	8.30 p.m. Charles Lecocq Concert, by the Station Symphony Orchestra.
ROME	9 p.m. Operatic Variety Concert.

ATHLONE

413 metres; 60 kW., and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Talk on Gardening. **7.45,** Talk. **8.0,** Percy Pitt Memorial Concert, relayed from **London. 9.0,** Mezzosoprano Solos by Pearl Maconkey. **9.15,** Reading of Ulster Poems. **9.35,** Violin and Pianoforte Duets by William and Gerrard Shanahan. **10.0,** The Station Orchestra. **10.30,** Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO-BARCELONA; Call EAJ1; 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert: Norwegian Dance No. 2 (Grieg); Selection from Phryné (Saint-Saëns); Oehsen-Menuett (Haydn); Autumn Song (Elgar); Andante from the Cassation in G (Mozart); Selection from The Valkyries (Wagner). **7.0,** Request Gramophone Records. **7.30,** Exchange Quotations. **8.0,** Light Music on Gramophone Records, and News Bulletin. **9.0,** Chimes from the Cathedral, Weather, Messages to Seamen, and Market Prices. **9.10,** Concert by the Station Orchestra. **10.0,** Vicente Diez de Tejada reads from his own Works. **10.15,** Concert by the Vilalta Orchestra, relayed from the Café Español. **11.0** (in an interval), News Bulletin. **12 Midnight** (approx.), Close Down.

BARI

270 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes, Tourist Talk and Dopolavoro Announcements. **7.20,** Giornale Radio and News Bulletin. **7.30,** Time Signal and Announcements. **7.35** (approx.), Concert of Opera Music: Overture, Salvator Rossa (Gomez); Soprano Aria from Dolores (Anteri-Manzocchi); Selection from Faust (Gounod); Baritone Aria from Ernani (Verdi); Soprano Solo: Song from Fedora (Giordano); Selection from La nave rossa (Seppilli); Overture, Le donne curiose; Baritone Aria from Maria di Rohan (Donizetti); Soprano Solo: Air from Dejanice (Catalani); Intermezzo from Act II of Il voto (Giordano); Baritone Solo: Serenade from The Damnation of Faust (Berlioz); Soprano Solo: Song from Andrea Chenier (Giordano); Trimphal March from Aida (Verdi). In the interval: Sports Talk. **9.30,** Concert relayed from the Grand Hotel, Moderno. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—**4.0 p.m.,** Talk. **5.10,** Time Signal and Programme Announcements. **5.15,** Relay from a School. **6.20,** Talk for Sokols. **7.0,** Beethoven Music: Trio in B for Clarinet; 'Cello and Pianoforte; Pianoforte Concerto No. 2 with Orchestral Accompaniment. **8.0,** Recital of Yugoslav Songs. **8.30,** Violin Recital by Andrija Hauser. **9.0,** News. **9.5,** Cigány Music, relayed from the Ratnicki Dom Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert relayed from **Berlin (Witzleben). 2.0,** Talk for Girls. **2.30,** Weather and Exchange. **2.45,** Topical Review. **3.0,** Talk: The Private School from a Legal Standpoint. **3.30,** See **Leipzig. 4.10,** Topical Talk. **4.30,** Talk: The Germanic Man and his God. **5.0,** Harp Recital by Max Saal: Courante (J. S. Bach); Gigue (J. S. Bach); Bourrée (Bach-Saint-Saëns); Minuet (Rameau); Fantasia in C Minor, Op. 35 (Spohr); Die Moldau (Smetana-Trnecek). **5.30,** Talk for Workers. **5.55,** Weather and Announcements. **6.0,** Talk: The Political Struggle against the War Guilt Question. **6.30,** A Poem. **6.35,** Concert of Light Music from the Traube Weinrestaurant. **7.0,** See **Leipzig. 8.20,** Part Relay of a Choral Concert from Stadthalle, Königsberg; The Königsberg Opera House Orchestra, conducted by Bruno Vondenhoff, the Choir of the Academy of Music; Soloists, Adelheid Armhold (Soprano), Enid Szantho (Contralto), Charles Kullmann (Tenor), and Prof. Albert Fischer (Bass): Coronation Mass for Solo Quartet, Choir, and Orchestra (Mozart); Cantata, Nun ist das Heil und die Kraft—for Double Choir and Orchestra (Bach). **9.5,** Weather, News and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN; 419.5 metres; 1.5 kW.—**5.55 p.m.,** The Witzleben Station informs its Listeners . . . . **6.0,** Topical Talk. **6.15,** Orchestral Concert relayed from the Eden Pavilion. **6.35,** Talk: The Towns and their Significance in National Politics. **7.0,** Choral Concert conducted by Walter Sieber: Der Schnitter Tod (arr. Hausegger); Songs (Mendelssohn): (a) Frühlingsahnung, (b) Die Nachtigall; Songs (Brahms): (a) In stiller Nacht, (b) Es geht ein Wehen; Songs (Schumann): (a) Sommerlied, (b) Im Walde. **7.25,** Announcements. **7.30,** See **Breslau. 8.30,** Wind Instrument Concert conducted by Hans Ailbout. **9.30,** Weather, News and Sports Notes. **9.40** (approx.), Three Dance Bands on Gramophone Records—Paul Godwin, Oscar Joost and Hans Schindler. **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landesesnder.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—**7.30 p.m.,** News Bulletin. **7.40,** Educational Talk. **7.55,** Lottery Results. **8.0,** Spanish Lesson. **8.15,** News Bulletin and Weather Forecast. **8.30.** Concert by a Symphony Orchestra and Soloists.

BRATISLAVA

279 metres; 14 kW.—**5.25 p.m.,** Popular Music on Gramophone Records. **5.30,** Sports Talk. **5.45,** Slovak Spelling Lesson. **6.0** till Close Down, See **Prague. 9.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.—12.10 p.m.,** Gramophone Concert: **12.45,** Time, Weather, News and Exchange. **1.5,** Gramophone Concert: Waltz, O sole mio (di Capua); Carceleras (Chapi); Serenade (Tosti); Uber Nacht (Wolt); Contralto Songs: (a) Dans la fumée (Bos), (b) Parlez moi d'amour (Lenoir); Serenade, Revue (Toselli); Serenade (Toselli); Russian Folk Song; The Red Sarafan; Die Turteltaube (Kondor); Hungarian Song (Kondor); Mickey Mouse on his Travels. **1.45,** Post Office Programme with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Programme for Young People. **3.10,** Orchestral Concert. Conductor: Franz Marszalek. Soloist: Alfred Stoeckel (Tenor). Overture, The Naiads (Bennett); Songs (Quilter): (a) Come away Death, (b) O Mistress mine, (c) Blow, blow thou Winter Wind, (d) Night Song; Three Irish Pictures (Ansell); Songs (Quilter): (a) Love's Philosophy, (b) To the Daisy, (c) Sigh no more, (d) There was a Lover and his Lass; Finale from Masquerade (Sullivan). **4.0,** Reading of Unpublished Works by Young Authors. **4.30,** Agricultural Prices, followed by Discussion on the Youth Movement by Young People. **5.0,** Programme to be announced. **5.30,** Talk: The Advisability or otherwise of taking up Voluntary Work on leaving School. **6.0,** Orchestral Concert: Capriee Italien (Tchaikovsky); Selection from Prince Methuselah (Joh. Strauss); Overture, Der Waffenschmied (Lortzing); Gallop, Bahn frei! (E. Strauss). In an interval at **6.30,** Weather for Farmers and Market Prices. **6.45,** Talk by Kurt G. Sell: What People are talking about in America, relayed from America. **7.0,** Military Band Concert in Aid of the Winter Relief Fund, relayed from the Konzerthaus. Classical Music. **7.30,** Kunersdorf—Radio Play (Wolfgang Goetz). **8.20,** Announcements. **8.30,** See **Leipzig. 9.10,** Military Band Concert (contd.). Part II—Marches, followed by Grand Tattoo. **9.35,** Time, Weather, News, Sports Notes and Programme Announcements. **9.50,** Talk: Winter Pastimes for Young People in the Country. **10.5,** Concert from **Langenberg. 11.0** (approx.), Close Down.

BRNO

342 metres; 35 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by B. Bakala: March (Fucik); Song (Papousek); Sousedská (Chvála); Kamarinskaja (Glinka); In the Steppes of Central Asia (Borodin); Waltz from Eugene Onegin (Tchaikovsky). **3.55,** Theatre Notes. **4.5,** See **Prague. 5.5,** See **Prague. 5.5,** Talk: Creative Art. **5.15,** Talk for Workers. **5.25,** German Transmission: News, Sports Notes and a Talk. **6.0,** See **Prague. 8.0,** Talk. **8.10,** Concert by the Station Orchestra, conducted by B. Bakala. Soloist: F. Schäfer (Pianoforte). Overture, Op. 38 (Kalivoda); Pianoforte Concerto (Hummel); Orchestral Suite (Vanura). **9.0,** See **Prague. 9.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R.; 509 metres; 15 kW.—**12 Noon,** Concert by the Little Radio Orchestra, conducted by M. Leemans: March (Sousa); Selection from The Merry Peasant (Fall); Flute Solo: Mazurka (Doppler); Four Pieces for Orchestra (d'Ambrosio); Pianoforte Solo: Mazurka (de Boeck); Extracts from the Little Suite for Strings (Daneau); Waltz from Les Moulins qui chantent (Van Oost). **1.0 p.m.,** Le Journal Parlé. **1.10,** Selection from Don Pasquale—Opera (Donizetti), on Gramophone Records. **2.0,** Educational Programme. **5.0,** Concert by the Radio Orchestra, conducted by M. Franz André: Selection from La Bohème (Puccini); Pizzicato (Delibes); Fantasia for two Pianofortes (Youmans); Slav Idyll (Ackermans); Extracts from Roma (Bizet); 'Cello Solo: Berceuse (Renard); Aphrodite (Jongen); Waltz (Berger). **6.0,** Talk: The Americans and the Belgians. **6.15,** Songs of Auvergne on Gramophone Records. **6.30,** Concert by the Little Radio Orchestra, conducted by M. Leemans: Recuerdos de viaje (Albeniz); 'Cello Solo: Spanish Serenade (Glazunov); Spanish Dance (Falla); Fantasia on Spanish Airs (Broustet); Pianoforte Solo: Cadiz (Albeniz); Spanish Dance Melodies (Laparra); Le Feria (Lacôme). **7.15,** Talk: The Part played by Social Work in the Campaign against Cancer. **7.30,** Literary Review. **8.0,** Programme of Military Marches and Popular Songs of the Time of the Consulate and the First Empire, with Commentary. **8.45,** Two Talks for Ex-Servicemen. **9.0,** Programme of Marches and Songs (contd.). **10.0,** Le Journal Parlé. **10.10,** Overture, Benvenuto Cellini (Berlioz), on Gramophone Records. **10.25,** Gramophone Concert: Nights in the Gardens of Spain (Falla); Lament (Fauré); Largo from the Sonata for 'Cello (Chopin); Clair de lune (Fauré); Andaluza (Falla); Ronde villageoise (Chabrier).

BRUSSELS (No. 2)

N.I.R.. 338.2 metres; 15 kW.—Programme in Flemish.—**12 Noon,** Extracts from Tannhäuser (Wagner), on Gramophone Records. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, La belle Hélène (Offenbach); Beghine in chiesa (Signorini); Minuet (Boccherini); Selection from Les Noces de Jeannette (Massé); Flute Solo: Les échos des bois (Damaré); Waltz (Novno); Selection from Frederica (Lehar). **2.0,** Educational Programme. **5.0,** Concert by Mickey's Club Jazz Attraction. **6.15,** Talk. **6.30,** See **Brussels No. 1. 7.15,** Toussaint Van Boulaere reads from his own Works. **7.30,** Wireless Notes. **8.0,** Don Juan —Play (Avermaete), with Music by Van der Eecken. **9.0,** Quartet Concert: Quartet Op. 76, No. 4 (Haydn); Quartet in F (Grieg); Quartet Op. 59, No. 3 (Beethoven). **10.0,** Le Journal Parlé. **10.10,** Gramophone Concert: Slow Foxtrot, By my side (Dick); Foxtrot, Walkin' my Baby back home (Turk); Waltz, Delta (Bransen); Jolly Good Company (Wallace); Waltz, Girl of a Million Dreams (Gilbert); Foxtrot, Got the Bench, got the Park (Sherman); Waltz, Would you take me back again (de Rose); Foxtrot, Joey the Clown (Myers); Waltz, Pomone (Waldteufel); Lady, play your mandoline; One night alone with you (Jeffreys); Valse vanité (Wiedoeft); Tango, Aromas de los Andes (Porschman); Foxtrot, Just one more chance (Johnston); Waltz, Soirée d'été (Waldteufel); Rumba (Gilbert). **11.0** (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—**4.0 p.m.,** Concert by the Radio Orchestra: March, Eppler (Brandner); Waltz, Die Schonbrunner (Lanner); Overture, Flotte Bursche (Suppé); Selection from The Queen of Spades (Tchaikovsky); Selection from Fédora (Giordano). **5.0,** News and Time Signal. **5.10,** Talk. **5.25,** Concert (contd.): Slav Dances Nos. 5 and 10 (Dvorák); Träumerei (Schumann); Selection from The Gipsy Baron (Strauss); **6.0,** Talk on Romania: Her Foreign Trade. **6.40,** Talk. **7.0,** Symphony Concert. **9.0,** News Bulletin.

BUDAPEST

550 metres; 18.5 kW.—**4.0 p.m.,** Concert by the Budapest Concert Orchestra, conducted by Otto Berg: Selection from (a) The Caliph of Bagdad (Boieldieu), (b) La Bohème (Leoncavallo), (c) Un Bal costumé (Rubinstein); Hungarian Dance (Vaszy); Gold and Silver (Lehar); Selection from Die Fledermaus (Joh. Strauss). **5.10,** Shorthand Lesson. **5.30,** Ernst Lanyi Memorial Programme, Introductory Talk and Song Recital. **6.0,** Talk: The Development of the Balkan Problem since the Berlin Congress. **6.30,** Relay from the Royal Hungarian Opera House. In the Interval, News. After the Programme, Concert by a Cigány Band. **10.30,** Dance Music. **11.0** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW., and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.15 a.m.,** Broadcast for Schools: Scenes from Modern German Drama. **11.45 to 2.0 p.m.,** Interval. **2.0,** Concert by the Station Orchestra, conducted by Launy Grøndahl: Overture, Gillette de Narbonne (Audran); Selection from Gluntarne (Wennerberg-Reesen); Finale from A Life for the Czar (Glinka); Waltz, Herzenkrisen (Fabrbach); Serenade for Flute and French Horn (Titl); Reading; Overture, Les Cloches de Corneville (Planquette); Waltz, Hortensia (Lange); Romance (Debussy); Waltz (Kuhlau-Nielsen); Catalan Rhapsody (Ailbout); March from Die Keusche Barbara (Nedbal). **4.0,** Programme for Children. **4.40,** Exchange and Fish Market Prices. **4.50,** Talk on Danish Literature. Johan Ludvig Heiberg's Vaudevilles. **5.20,** German Lesson. **5.50,** Weather Forecast. **6.0,** News. **6.15,** Time Signal. **6.30,** Talk: National Economy. **7.0,** Chimes from the Town Hall. **7.5,** Programme by Per Knutzon. **7.10,** Choral and Organ Recital of Sacred Music, relayed from the Castle Church. Christiansborg. **7.50,** A Radio Play. **8.30,** Saxophone and Marimba Recital. **8.50,** Songs from Danish Vaudevilles by Immanuel Franksen. **9.5,** News. **9.20,** Viennese Music by the Station Orchestra, conducted by Fritz Mahler: Overture, Rosamunde (Schubert); Viennese Dances (Beethoven); Military March No. 3 in E Flat (Schubert); Kaiserwalzer (Joh. Strauss); Overture, Der Waldmeister (Joh. Strauss). **10.5,** Dance Music from the National Scala. In the interval at **11.0,** Time and Chimes from the Town Hall. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**12 Noon**, Gramophone Concert of Popular Music. **12.30 p.m.**, News. **12.45**, Concert of Variety Music. **6.0 to 7.0**, Programme in English by the I.B.C. Announcers: C. Danvers Walker, R. Chene, and B. McNabb. **6.0**, Concert for Torquay Listeners. Quartet: Andante Cantabile; O Mistress Mine; Glorious Devon; Quartet: (a) Molly on the Shore, (b) Siciliana; Red Devon by the Sea; Young Tom o' Devon; Quartet: Cherry Ripe. **6.30**, Concert for Weymouth Listeners. Xylophone Solos: Handsome Gigolo (Bramer); Looping the Loop (Gaston); Here comes Emily Brown (Conrad); Selection from The Love Parade; Alice in Wonderland; Marionette (Gaston); Puttin' on the Ritz. **7.0**, News and Popular Music on Gramophone Records. **7.15**, Agricultural Report. **7.30**, Radio Gazette. **8.0**, Answers to Correspondents and News. **8.30**, Concert, relayed from **Le Havre.** **10.0** till Close Down. Programme in English by the I.B.C. Concert. Love is like that; I owe you; Great Day; They all fall in Love; Swingin' in a Hammock; Falling in Love Again; Adeline; Absence makes the Heart grow fonder; Don't tell her what happened to me; A Californian Serenade; I believe in you; Over the Hills and far away; If you haven't got love; Music; My Future just passed; Good-night. **11.0**, Symphony Orchestra. Overture, Semiramide (Rossini); Waltz, Sphärenklänge (Strauss); Morning, from the Peer Gynt Suite (Grieg); Weaner Mädln (Ziehrer); Rakoczy March (Berlioz); Classical Selection (arr. Erwing). **11.30**, Vocal Concert. Trio, Mia Bella Rosa; Duets: (a) Leave the Pretty Girls alone, (b) Till To-morrow; Trio, Will you forget? Duets: (a) Way down in Georgia, (b) You'll always be the Same, (c) In an old World Garden; Trio, A Night of Happiness. **12 Midnight**, A Musical Trip round the United Kingdom; The Barrers in the Walworth Road; Down in a Sussex Farmyard; Green Hills of Somerset; Devonshire Cream and Cider (Sanderson); The Floral Dance; Welsh Medley; Cymru Anuwyl; A Lancashire Ramble; A Border Ballad; The Bonnie Banks o' Loch Lomond; Bagpipe Solo: Highland Reel; D'ye ken John Peel; On Ilka Moor baht 'aht; Down Vauxhall Way; Home, sweet Home. **1.0 a.m. (Saturday)**, Variety Concert: Music Hall Favourites; You can't beat the Old Fashioned Razor; The Gondolier; Showboat Blues; Drawing on a Slate; I want to get thin; Just a crazy Song; You Rascal, you. **1.30**, Songs: Hollywood Nights; I'd rather be a Beggar with you; Reach out for a Rainbow; Talkie Gems; Just you, just me; I'm a Hundred Per Cent. in Love with you; Love me. **2.0**, Variety Concert; Love is the sweetest Thing; Good Morning, Mr. Sun; I'll do my best to make you happy; Smile and sing your Cares away; The Voice in the old Village Choir; The turning of the Tide; Where the Blue of the Night; Day by Day; An Evening in Carolina; Now that you're gone; By the Sycamore Tree; Blues in my Heart; Now's the Time to fall in Love; Back again to happy-go-lucky Days; Only me knows why; Hot Coffee. **2.57**, I.B.C. Good-Night Melody. **3.0**, Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259 metres; 17 kW.; and **CASSEL, 245.9 metres**; and **TRIER, 259.3 metres.**—**5.25p.m.**, Talk: The Political Reorganisation of Switzerland. **5.50**, See **Stuttgart.** **6.15**, Time, Programme Announcements, Weather and Exchange. **6.0**, Reminiscences of Richard Wagner—an Interview with Ludwig Strecker, the Senior Partner of Wagner's Publishers, by Hans Rosband. **7.10 to 9.10**, See **Stuttgart.** **9.10**, Time, News, Weather and Sports Notes. **9.45**, Concert by the Darmstadt Chamber Orchestra, conducted by Hans Simon. Soloist: Hans Andrä. Fourth Symphony in A (Frederick the Great); Concerto for Viola da Gamba (Graun-Hans Andrä); Sinfonia da Camera (Richter); Symphony No. 3 (C. P. E. Bach). **11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse); **372 metres**; 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.**—**6.5 p.m.**, Talk: Dwellings for Single Women. **6.25**, Weather Report. **6.30**, Jakob Wassermann Programme on the occasion of the Novelist's Sixtieth Birthday: Talk, and Readings from his Works. **7.0**, Brahms Concert, relayed from the Musikhalle. The Hamburg Teachers' Choir and the Philharmonic Orchestra, conducted by Eugen Papst. Soloists: Edith Niemeyer and Karl Erb (Songs). Introductory Talk. Nänie for

Choir and Orchestra; Rhapsody, Schicksalslied, for Choir and Orchestra; Rinaldo—Cantata, for Choir, Tenor, and Orchestra. In the interval, News. **8.45**, Time and News. **8.55**, Topical Talk. **9.10**, Concert, relayed from the Alsterpavillon. **10.20**, Ice Report. **10.25**, Concert, relayed from the Atlantic, **Bremen.**

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW., and **DANZIG, 453.2 metres.**—**12.5 p.m.**, Light Music on Gramophone Records. In the interval at **12.20**, News. **1.30**, Programme with Gramophone Records. **2.0**, Agricultural Prices and Exchange Rates. **2.30**, Programme for Children. **3.0**, Talk for Women. **3.30**, See **Leipzig.** **4.30**, Alfred Piccaver (on Gramophone Records): Songs from: (a) Manon (Massenet), (b) Fédora (Giordano), (c) The Force of Destiny (Verdi), (d) The Girl of the Golden West (Puccini). **4.45** (from **Danzig**), Talk: Hunting-grounds in Danzig now and in the past. **5.15**, Agricultural Prices. **5.20**, Ice Report. **5.30**, Sonata in B Flat for Pianoforte (Schubert), by Alfred Schroeder. **6.5**, Talk on Agnes Miegel. **6.30** (from **Danzig**), French Conversation. **7.0**, Weather and News. **7.10**, The Resurrection Cantata (Otto Besch), relayed from the Town Hall, Königsberg. The Königsberg Opera House Orchestra, conducted by Bruno Vondenhoff, the Choir of the Academy of Music, and Soloists: Adelheid Armhold (Soprano) and Prof. Albert Fischer (Baritone). **7.50** (from **Danzig**), The German Chancellor Hardenberg. **8.50**, Pianoforte Trio, Op. 20 (Paul Graener), by the Ninke Trio. **9.15**, Weather, News and Sports Notes.

HILVERSUM

Announced **HUIZEN, 296.1 metres**; 20 kW. (7 kW. up to **4.40 p.m.**).—Programme of the Catholic Radio Society (K.R.O.). **11.55 a.m.**, Concert by the K.R.O. Sextet: Gramophone Records in the Interval. **1.25 to 1.40**, Interval **1.40**, Light Music on Gramophone Records. **2.40**, Organ Recital by M. E. Haak, with Songs by Mlle. J. Boelen (Contralto): Wedding March (Widor); Songs: (a) Gib dich zufrieden und sei stille (Bach), (b) Kommt, Seelen dieser Tag (Bach), (c) Jesus, unser Trost und Leben (Bach), (d) Gebet (Hiller); Andante Cantabile (Beethoven); Gothic Suite (Boëllmann); Three Songs (Cornelius): (a) Vater Unser, der du bist im Himmel, (b) Geheiligt werde dein Name, (c) Zu uns komme Dein Reich; Fantasia (Haak). **3.40**, Trio Concert. H. van Born (Violin), S. Bril (Cello), and C. van Boven (Pianoforte); Trio, Op. 1, No. 1 (César Franck). Trio in D Minor, Op. 49 (Mendelssohn). **4.40**, Agricultural Talk. **5.10**, Concert by the K.R.O. Boys, conducted by P. Lustenhouwer. Soloist: J. Mossel (Songs). **5.55**, Rhetoric Lesson. **6.25**, Concert by the K.R.O. Boys (contd.). **6.50**, Light Music on Gramophone Records. **7.10**, Police Notes. **7.25**, Talk. **7.40**, Concert by the K.R.O. Boys (contd.). **8.10**, News. **8.15**, Agricultural Talk. **8.40**, Concert by the K.R.O. Orchestra, conducted by J. Gerritsen. Soloist: Mlle. Nadia de Cléry (Songs). Overture, Iphigenia in Aulis (Gluck); Songs: (a) Caro mio ben (Giordano), (b) Chanson triste (Duparc), (c) Ständchen (Strauss); Selection from Tristan und Isolde (Wagner); Tristan's Vision and Death from Tristan und Isolde (Wagner). **9.25**, Song Recital by Mlle. Nadia de Cléry. **9.45**, Concert by the K.R.O. Orchestra (contd.): Persian March (Strauss); Operetta Overture (Lincke); Waltz from Der arme, Jonathan (Millöcker); Selection from La Traviata (Verdi); Meditation (Each-Gounod); Selection from The Bird Fancier (Zeller); Gramophone Records: Unter neuem Regime (Ertl); Waltz, España (Waldteufel); From the Rhine to the Danube (Rhode). **11.10**, Popular Music on Gramophone Records. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres**; 8.5 kW.—**11.40 a.m. to 3.40 p.m.**, Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.40**, Time Signal. **11.41**, Concert by the Wireless Orchestra, conducted by Nico Treep, with Gramophone Interludes. **1.40 p.m.**, Talk. **2.0**, Light Music on Gramophone Records. **2.10**, Concert by the Wireless Chamber Orchestra, conducted by Nico Gerhartz: Persian March (Joh. Strauss); Carnival Overture (Suppé); Cradle Song and Old Minuet (Sgambati); Selection from The Queen of Sheba (Gounod); Gramophone Records; Waltz from Weiner Blut (Joh. Strauss); Ninon (Tosti); Cabaletta (Lack); Selection from Die geschiedene Frau (Fall); Paraphrase on Hungarian Folk Songs (Padouk). **3.40 to 7.40**, Programme of the Workers' Radio Society (V.A.R.A.). **3.40**, Concert by the Little V.A.R.A. Orchestra, conducted by P. Duchant. **4.30**, Programme for Children. **5.10**, Concert by the V.A.R.A. Orchestra, conducted by P. Duchant. **5.55**, Organ Recital by Johan Jong, with Songs by L. Fuld. **6.40**, Talk. **7.0**, Concert by De Fliereduiters: When Sally left the Alley (Rose-Mann); Let's all sing like the Birdies sing (Evans); Sweet Muchacha (Ager); Halewijn (Verhaar); So marschieren die Bayern (Kreisler); Ein stilles Glück (Kreisler); Ich wäre gern einmal verliebt (Kreisler); Schöne Isabella von Kastilien (Bootz); After to-night we say Good-bye (Towers); Wir tanzen Weltschlager (Borchert); Melody (Colson); Tempo Tempo (Schoutemeyer). **7.40 to 10.40**, Programme of the Liberal Protestant Radio Society (V.P.R.O.). **7.40**, Religious Address. **8.10**, Wagner Music on Gramophone Records. In the interval at **8.40**, Talk. **9.40**, News Bulletin. **9.55**, Talk on Wagner. **10.25**, Gramophone Records. **10.40**, V.A.R.A. Programme: Gramophone Records of Light Music. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; **16 kW.**—**6.15 p.m.**, Announcements and Gramophone Records. **6.25**, Sports Notes. **6.30**, See **Warsaw.** **10.0**, The Letter Box in French.

KAUNAS

1,935 metres; 7 kW.—**6.30 p.m.**, Concert of Light Music. **7.10**, Medical Talk: Nervous Disorders. **7.30**, Variety Programme. **7.50**, Talk in Hebrew. **8.10**, Concert.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres, 40 kW.; and **HELSINKI. 368.1 metres.**—**5.40 p.m.**, Talk. **6.5** (from **Helsinki**), Symphony Concert by the Municipal Orchestra, conducted by Georg Heberg, relayed from the University. Soloist: Wolfgang Schneiderhan (Violin). Brandenburg Concerto (Bach); Overture, Coriolanus (Beethoven); Violin Concerto in A Minor (Glazunov); Symphony No. 3 in C, Op. 21 (Borresen). **7.45**, News in Finnish. **8.0**, News in Swedish.

LANGENBERG

473 metres; 60 kW.—**12 Noon**, Concert conducted by Eysoidt. In an interval at **1.0** (approx.), Announcements. **1.30**, Sponsored Programme, with Gramophone Records. **2.30**, Economic Notes and Time Signal. **2.50**, Programme for Children. **3.20**, Programme for Young People. **4.0**, See **Munich.** **5.20**, English Conversation. **5.45**, Weather, Time, Economic Notes, and Sports Forecast. **6.0**, Masters of Travel Description: Edwin Erich Dwinger: A Journey to Greece. **6.20**, Talk: A Hundred Years of Prison Welfare Work in Wuppertal. **6.55**, Announcements. **7.0**, Orchestral Concert of Viennese Music, conducted by Kühn. Overture, Wiener Geschichten (Hellmesberger); Waltz, Alt-Wien (Kremser); Suite of Schubert Dances (Kühn); Waltz (Bittner); Lively Variations on a Waltz by Johan Strauss (Zador); Overture, Wiener Frauen (Lehár); Waltz, Wiener Luft (Ziehrer); Eysler Potpourri (Hruby); Waltz, Neu Wien (Joh. Strauss); Polka, 's gibt nur a Kaiserstadt (Joh. Strauss); Österreichischer Defiliermarsch (Joh. Strauss). **9.5**, Announcements, Educational Notes, and Sports Notes. **9.20**, Songs and Recitations. **9.50**, Serenade conducted by Wolf. **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW; and **DRESDEN, 319 metres.**—**11.5 a.m.**, Orchestral Concert, conducted by Wilhelm Schmidt. In the interval at **12 Noon**, News, Weather, Snow Report and Time. After the Concert, Exchange Quotations. **1.30 p.m.**, Art and Film Reports. **2.15**, Talk for the Country Woman. **2.35**, Economic Notes. **3.0 to 3.15**, The Gardening Calendar for March. **3.30**, Orchestral Concert, conducted by Count von Kalckreuth: Overture, Inventuti et patric (Kaun); Selection from The Merry Wives of Windsor (Nicolai); Waltz, Paysage d'autonne (Waldteufel); Festlicher Marsch (von Vignau); Melodies (Rohde): (a) Forest Calm, and (b) Elf Dance; Selection from The Merry Peasant (Fall). **4.30**, Book Review. **5.25**, English Lesson. **5.50**, Programme to be announced. **6.0**, Artist's travel round the World—a Radio Sequence (Wilfried Göpel). **6.35**, Concert by a French Horn Quartet: Wohlauf, noch getrunken (Schumann); Auf zur fröhlichen Jagd (Pfeiffer); Der Wildschütz (Pickl); Ein Vöglein sang im Lindenbaum (Eberle); Gute Nacht (Möhring). **7.0**, Der Dresdner Zwinger—Radio Sequence (Herbert Roth), with Music by the Dresden Mozart Society's Orchestra, conducted by Erich Schneider. **8.15**, Talk on Economics. **8.30**, Concert by the Dresden Philharmonic Orchestra, conducted by Heinrich Svoboda: Symphonic Overture, Op. 13 (Kornauth); Concerto (Finke); Five Orchestral Pieces (Kaufmann). **9.30**, News Bulletin. **9.35** (approx.), Gramophone Concert: Leichtes Blut (Jos. Strauss); Song, Spiel ich die Unschuld vom Lande from Die Fledermaus (Joh. Strauss); Corinthian Song Variations (Strobl); Serenade from The Goldsmith of Toledo (Offenbach); Gondola Song from Eine Nacht in Venedig (Joh. Strauss); Old Vienna (Schubert-Friedmann); Country Suite (Scassola); Potpourri of Soldier Songs, Was unsere Soldaten sangen; Selection from Rigoletto (Verdi); Three Old Songs; Funkgeister (Nouck); March Potpourri (Zimmer). **10.30** (approx.), Close Down.

LINZ.—See **Vienna.**

LWOW

381 metres; **16 kW.**—**6.0 p.m.**, Talk. **6.15**, Miscellaneous Items. **6.30 to 10.0**, See **Warsaw.** **10.0** (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—**7.30 p.m.**, Radio Gazette for Lyons and the South East. **8.30**, Programme arranged by Les Amis de Guignol, relayed from the Salle Molière, with Introductory Talk. After the Programme, News Bulletin.

MADRID

ARANJUEZ (EAQ); 30.43 metres; 20 kW.—**10.30**, Variety Concert. **10.45**, Dramatic Programme. **11.0**, Variety Concert (contd.). **11.35**, Answers to Correspondence. **11.40**, Spanish-American Talk. **11.45**, Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—**7.0 p.m.**, Chimes, Exchange Quotations and Programme of Musical Novelties. In the interval: Medical Talk. After the Programme: Variety Items by Ramon Gomez de la Serna. **8.15**, News Bulletin and Political Review. **8.30 to 9.30**, Interval. **9.30**, Chimes, Time Signal and Political Review. **9.45** (approx.), D. Pedro A. De Alarcon Memorial Programme for the Centenary of his Birth. **11.45**, News Bulletin and Programme Announcements for Listeners Abroad. **12 Midnight**, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**5.5 p.m.**, Talk. **5.15** till Close Down, See **Prague.** **9.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**4.30 p.m.**, Wagner Concert. **5.30**, Concert of Soviet Music. **8.0**, Review of the Week and Answers to Correspondents in English.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres**; and **Nurnberg, 239 metres.**—**4.0 p.m.** (from **Nürnberg**), Concert by the Nürnberg Concert Society's Orchestra, conducted by Philipp Weimer: Ovetrrue, Die Felsenmühle (Reissiger); La lettre de Manon (Gillet); Perceuse (Culotta); Happy Heart (Culotta); Fantasia on Themes by Weber (Schreiner); Romance, Die Nacht (Rubinstein); Schattenspiele (Fucik); Oriental Suite (Popy). **5.15**, Talk on Occupations: The Apprentice in the Textile Industry. **5.35**, Talk: German Ideas of Government. **5.55**, Time, Weather, Agricultural Notes and Snow Report. **6.5**, Winter Sports Notes. **6.25**, Concert by the Garmisch-Weilheim Teachers' Choral Society, relayed from the Turnhalle: Murnau. Three Medieval Melodies: (a) Schenk zubachs Reiterlied (Knörl), (b) Twentieth Century Minnelied (Pilland), (c) Landsknechtständchen (Zengerle); Soviet Stern (Engelberg); Unterm Machandelbaum; Ein Tag im goldenen Licht (Strasser); Heimat (Trunk); Wegwarte (Kaun). **7.0**, Concert of Light Music by the Symphony Orchestra of the Palatinate and Saar Districts, conducted by Ernst Boche. **8.0**, Topical Talk. **8.10**, Twenty Three from U.S.A.—An Extract from History (Hellmuth Unger). **9.20**, Time, Weather, News and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres;** and **Rjukan, 447.1 metres.**—**4.30 p.m.**, Programme for Schools. **5.0**, French Lesson. **5.30**, Song Recital by M. A. Hauge (Baritone). **6.0**, Announcements, Weather and News. **6.30**, English Lesson. **7.0**, Time Signal. **7.1**, Concert by the Philharmonic Orchestra, conducted by M. Odd Grüner Hegge: Symphony in D Minor (Sinding); Norwegian Rhapsody, No. 1 (Halvorsen); Exotic Suite (Alf Hurum); Carnaval de Paris (Svendsen). **8.30**, Foreign Agricultural Report, Weather and News. **9.0**, Topical Talk. **9.15**, Reading. **9.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—**7.0 p.m.**, Dopolavoro Notes, Tourist Report, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. **7.20**, Popular Music on

Gramophone Records. In an interval at **7.30**, Time and Announcements. **7.45**, Manon—Opera in Five Acts (Massenet). In the intervals, Talk and Literary Notes. After the Opera, News.

PARIS

EIFFEL TOWER; Call FLE; 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.**, Le Journal Parlé. **7.20**, Weather Report. **7.30**, Concert by the Radio Orchestra, conducted by Edouard Flament: Prelude to Pénélope (Fauré); Sicilian Rhapsody (Silver); Pavane from Le Maschere (Mascagni); Fête bretonne (Lazzari); Pagode au crépuscule (Flament); Overture, Hansel and Gretel (Humperdinck). **8.15**, Musical and Literary Programme for Young People. **9.0** (approx.), Close Down.

PARIS

POSTE PARISIEN; 328.2 metres; 60 kW.—**6.45 p.m.**, Le Journal Parlé. **7.0**, Gramophone Concert of Variety Music. **8.15**, Interval. **8.30**, Charles Lecocq Concert, by the Station Symphony Orchestra: Selection from (a) Le cœur et la main, (b) La petite mariée. **10.30**, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—**6.45 a.m.**, Physical Culture. **7.30**, Weather and Physical Culture (contd.). **7.45**, Gramophone Records: Gopak (Mussorgsky); Humorous Scenes (Leonard); Habanera (Sarasate). **8.0**, Press Review and Weather. **12 Noon**, Jewish Address. **12.30 p.m.**, Concert by the Krettly Orchestra: Symphony (Mozart); Turkish March from The Ruins of Athens (Beethoven); Overture, To the Story of the Lovely Melusina (Mendelssohn); Andante from a Quartet (Schumann); Waltz in A (Chopin); Mazurka (Chopin); Nocturne (Boellmann); Gothic Minuet (Boellmann); Marche joyeuse (Chabrier); Dolly (Fauré). In the interval at **1.0**, Exchange, News and Weather, and at **1.30**, Exchange. **2.0**, Exchange **3.45**, Exchange and Market Prices. **4.30**, Advanced English Lesson. **4.50 to 6.10**, Interval. **6.10**, Agricultural Talk. **6.30**, Concert by the Krettly Orchestra: Mouvement d'eau (Migot); Sketches (Gaubert). **6.50**, Talk on Social Insurance. **7.0**, Talk: Wagner and Baudelaire. **7.20**, Concert (contd.): Love Song (Caludi); Jean qui pleure, Jean qui rit (Gillet); Mandoline Serenade (Eilenberg); On the Banks of the Douro (Marie); Eternelle Ivresse (Ganne); Mascarade (Lacôme). **7.45**, Commercial Prices and News. **8.0**, Reading. **8.30**, News and Weather. **8.40**, Gastronomic Review. **8.45**, Orchestral Concert, conducted by E. Eigot. Soloist: J. Quesnel (Violin). Overture, Polyeucte (Dukas); Le Chevalier à la Tulipe noire; Spanish Rhapsody for Violin and Orchestra (Lalo); Symphony No. 2 (Rabaud); España (Chabrier). In the interval at **9.15**, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.**, Work-a-day Thoughts, from **New York. 9.5**, Business News. **9.15**, S.A.I. Musicale (Carnegie Tech Chapter). **9.30**, Weather Report. **9.32**, Market Reports. **9.45**, Johnny Muskrat. **9.50**, David Lawrence Dispatch. **9.58**, Programme Announcements. **10.0**, Muskingum College Music Clubs. **10.30 to 11.15, New York** Relay. **10.30**, The Singing Lady. **10.45**, Little Orphan Annie. **11.0**, Our Daily Food—George Rector and Judge Gordon. **11.15**, Time Signal. **11.16**, Weather Report. **11.17**, Teaberry Sport Review. **11.22**, Press News Reeler. **11.27**, Strange Facts. **11.29**, Temperature Report. **11.30**, KDKA Orchestra. **11.45 to 3.30 a.m. (Saturday), New York** Relay. **11.45**, Today's News by Lowell Thomas. **12 Midnight**, Pepsodent Amos 'n' Andy. **12.15 a.m.**, Hilda Burke (Soprano). **12.30**, Five Star Theatre—Charlie Chan. **1.0**, Nestle's Programme. **1.30**, Time Signal and Adventures in Health. **1.45**, Howard Thurston, the Magician. **2.0**, The First Nighter. **2.30**, Armour Programme. **3.0**, Alice Joy with Rollickers. **3.15**, Vic and Sade. **3.30**, Bridge School of the Air, by E. Hall Downes. **3.45**, Bradley Kincaid. **4.0**, Time Signal. **4.1**, Teaberry Sport Review. **4.11**, Temperature Report. **4.12**, Weather Report. **4.13**, KDKA Artist Bulletin. **4.15**, Press Last Minute News Flashes. **4.20**, Smith Ballew and his Orchestra. **4.30**, Henry Halstead and his Californians. **4.58**, KDKA Artist Bulletin. **5.0**, Cotton Club Orchestra, from **New York. 5.30**, Time Signal and Goodnight.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.**, See **Brno. 3.55**, Talk: Town Planning. **4.5**, Concert by the Prague Quartet: Pianoforte Quartet No. 2 in E Flat (Mozart); String Quartet in G, Op. 106 (Dvorák). **5.5**, Agricultural Report. **5.15**, Talk for Workers: Karl Marx and President Masaryk. **5.25**, News in German. **5.30**, German Transmission: Two Talks: (a) On Peace, (b) On Creative Art. **6.0**, Chimes. **6.1**, News Bulletin. **6.10**, Talk: Betrothals and Weddings in the Arabian Desert. **6.25**, Talk on the following Transmission. **6.30**, Hugo Wolf Song Recital by Jaromira Tomaskova-Novakova. **6.55**, Talk by Prof. Jirak: Forms of Orchestral Music, with Illustrations by the Station Orchestra. **7.30**, Concert by the Station Orchestra, conducted by Otakar Jeremias. Soloist: Ada Nordenova (Soprano). **8.0**, Time Signal. **8.1**, Concert by the Prague Teachers' Choral Society, conducted by Method Dolezil. **9.0**, Time Signal. **9.1**, News Bulletin. **9.15** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.**—**5.0 p.m.** (from **Geneva**), Programme for Children. **5.15** (from **Geneva**), Discussion with Young People. **5.30** (from **Lausanne**), Educational Talk. **6.0** (from **Geneva**), Weather Forecast, News and Announcements. **6.30** (from **Lausanne**), Lesson for Printers. **7.0** (from **Geneva**), Humorous Pianoforte Recital. **7.15** (from **Geneva**), Three Radio Sketches. **8.0** (from **Geneva**), Cabaret Programme. **9.0**, News Bulletin and Weather Forecast. **9.10** (from **Geneva**), Talk: The Work of the League of Nations. **9.30** (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—**8.30 p.m.**, Weather Report. **8.40**, Musical Programme and Announcements. **9.0**, Chimes and News. **9.30**, By the Fireside.

RIGA

525 metres; 15 kW.—**3.50 p.m.**, Concert. **4.50**, Talk: The History of Industrial Development. **5.20**, Song Recital. **5.40**, Latvian Lesson. **6.10**, Weather Forecast. **6.15**, Symphony Concert by the Radio Orchestra, conducted by Prof. Medins. First Symphony (Tcherbatschev); Concerto in B Flat, No. 1, for Violin (Vivaldi-Frenkel); Suite brève (Aubert). In the interval at **7.0**, News, and at **8.0**, Weather and News. **8.30**, Dance Music. **9.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres;** and **2RO, 25.4 metres.**—**7.0 a.m.**, Gymnastics. **7.15 to 7.30**, Giornale Radio and Announcements. **11.30**, Weather and Light Music on Gramophone Records. **12 Noon**, Time and Announcements. **12.2 to 1.15 p.m.**, Concert from **Turin.** In the interval from **12.30 to 12.45**, Giornale Radio and Exchange. **3.0**, Pianoforte Recital by Claudio Arrau, from the Santa Cecilia Academy. **6.0 (Naples)**, Shipping and Sports Notes. **6.10**, Agricultural and Dopolavoro Notes. **6.20**, Giornale Radio and Light Music on Gramophone Records. **7.0**, Time and Announcements. **7.5**, Report of the International Institute of Agriculture (in Italian, English, French, German, and Spanish). **7.30**, Talk on Sport, Sports Notes, and Tourist Report. **7.45**, Concert. Soloists: Alfredo Sernicoli (Tenor), Bianca Bianchi (Soprano), and G. Castello (Baritone); Quintet for Pianoforte, two Violins, Viola, and 'Cello (Brahms); Modern Italian Lyrics for Tenor: Dance of the Sylphs, Minuet, and Hungarian March from The Damnation of Faust (Berlioz). **8.30**, A chi riporterà—Comedy in One Act (Eugenio Checchi). **9.0** (approx.), Variety Concert. Third Act of Werther (Massenet); Prologue to I Pagliacci (Leoncavallo); Overture, The Merry Wives of Windsor (Nicolai). **9.55**, News Bulletin

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.**—**7.30 p.m. to 12 Midnight, New York Relay. 7.30**, Three Shades of Blue—Male Trio. **7.45**, Muted Strings. **8.0**, Sonata Recital. **8.15**, Famous Loves. **12 Midnight**, New Kenmore Orchestra. **12.15 a.m. (Saturday)**, Stock Reports. **12.30 to 1.30, New York** Relay. **12.30**, Van and Don—Comedy Team. **12.45**, The Goldbergs—Comedy Team. **1.0**, Cities Service Concert. **1.30**, WGY Farm Programme. **2.0**, K-7—Secret Service Spy Story, from **New York. 2.30**, Pond's Programme, and Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW; **BASLE, 244.1 metres;** and **BERNE, 245.9 metres.**—**9.20 a.m.** (from **Basle**), Die Föhre—Monologue (Hausmann). **9.50 to 11.28,** Interval. **11.28,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40,** Concert by the Little Radio Orchestra. **12.35 to 12.45 p.m.,** Weather and Exchange. **2.30** (from **Basle**), Light Music by the Radio Quintet. **3.30** (from **Basle**), Programme for Children. **4.0,** Variety Music on Gramophone Records. **4.30 to 4.35,** Weather. **5.30** (from **Berne**), Reading: The Schoolmaster of Schwarzenburg (Bürki). **6.0,** Time, Weather, Market Prices, Tourist Report and Sports Notes. **6.20** from **Berne**), Folk Music. **6.45,** Der Amerikaner—Peasant Comedy in Five Scenes (Küchler-Ming). **8.45,** Weather and News. **8.55,** Concert by the Radio Orchestra. **9.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres; and Sundsvall, 542 metres.**—**12 Noon,** Broadcast for Schools. **4.5 p.m.,** Programme for Children. **4.25,** Song Recital by Walborg Beer. **4.45,** Reading. **5.15,** Variety Music on Gramophone Records. **6.30,** Talk: Swedish Chimes in Tower and Belfry, relayd from **Uppsala, 453.2 metres. 7.0,** Pianoforte Sonata in F Minor, Op. 5 (Brahms) by Astrid Berwald. **7.30,** Social Talk. **8.0,** Military Band Concert conducted by Per Grundström: Coronation March from The Prophet (Meyerbeer); Overture: Pique Dame (Suppé); Waltz, Frühlingsstimmen (Joh. Strauss); Two Finnish Songs (Merikarto); Symphonic Poem: Korsholm (Järnefelt). **9.0,** Chamber Music. **10.0** (approx), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Concert: Le camp de Wallenstein (d'Indy); Sinfonia brève (Inghelbrecht); Suite Carnavalesque (Thomé); Overture, Tutti in Maschera (Pedrotti); Impressions de Damas (Kougell). **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Light Music on Gramophone Records. **2.0 to 4.45,** Interval. **4.45,** Literary Talk in French. **5.0,** Concert of Jazz Music, conducted by M. Roskam: One-step, L'amour (Verdun-Oberfield); Foxtrot, When the Morning rolls around (Woods-Campbell-Connelly); Linger a little longer (Woods-Campbell-Connelly); Waltz, Sag' mir Darling (Reisfeld-Freyberg-Marbot); Foxtrot, The old Kitchen Kettle (Woods-Campbell-Connelly); We're a Couple of Soldiers, my Baby and Me (Woods); Wer weiss warum? (Lesso-Valerio); Foxtrot, When we're alone (Jason-Burton); Foxtrot (Goering-Bernie); Waltz from Frau Luna (Lincke); Wouldn't it be wonderful? (Clarke-Akst); Foxtrot, Stay 'way from my Arms (Kaper-Jurmann-Perry-Connelly); Tango, Le truc du Brésilien (Mireille); Foxtrot, Let's try again (Newman and Jones); Waltz, L'heure d'amour (Cuvillier); Foxtrot, Ein nettes kleines Fräulein (Sachs-Schwarz); One-step, Pamplona (Cochenx). **6.0,** Concert of Chamber Music by the Station Trio, relayed from **Lille, 265.4 metres. 7.0,** Topical Talk in German. **7.15,** Vocational Talk. **7.30,** Time and News. **7.45,** Lottery Results. **8.0,** Fortunio—Opera in Four Acts (Messager). **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.**—**12.15 p.m.,** Time, News, Weather, Snow Report, and Programme Announcements. **12.30,** Soldiers' Songs on Gramophone Records. **1.0,** Concert arranged by the Post Office. **1.30,** Advanced English Lesson. **2.0 to 4.0,** Interval. **4.0,** See **Munich. 5.15,** Time, Weather and Agricultural Notes. **5.25,** Talk: Johann Gutenberg and his Bible. **5.50,** Medical Talk. **6.15,** Time and News. **6.20** (from **Mannheim**), Talk by Paul Teickner: A Proposal for a Sunday Ramble. **6.30,** March—a Literary and Musical Programme by Emma Mayer (Contralto), Martin Lang, Walter Schwarz, and Ernst Stockinger (Recitations). **7.10,** Concert of Eighteenth Century Music by Baden and Wurttemberg Composers: The Stuttgart Philharmonic Orchestra, conducted by Emil Kahn: Trio in C Minor (Stamitz); Symphony in E (Holzbauer); Quartet in C (Richter); Old Wurttemberg Regimental Marches (arr. Karl Haas). **8.20,** Sources of Industry—III Cotton—a Radio Sequence. **9.10,** Time, News, Weather, Snow Report, Programme Announcements and Sports Results. **9.45,** Orchestral Concert, relayed from **Darmstadt:** Soloist, Hans Andrä ('Cello): Fourth Symphony in A (Frederick the Great); Concerto for Gamba (Graun); Sinfonia da Camera (Richter); Symphony No. 3 (C. P. E. Bach). **11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—**6.0 p.m.,** News Bulletin. **6.15,** Leonora Overture (Beethoven) by a Symphony Orchestra. **6.30,** Programme of Tangos. **6.45,** Tourist Talk. **7.0,** Songs from Sound Films. **7.15,** Racing Results. Market Prices and News. **7.25,** Local News Bulletin. **7.30,** Popular Music. **7.45,** Operetta Music: Airs from: (a) Les Noces de Jeannette (Massé), (b) Les Saltimbanques (Ganne), (c) Le Roi Pausole (Honnegger). **8.0,** Orchestral Music. **8.15,** Opera Music: Selection from (a) Lohengrin (Wagner), (b) Faust (Gounod), (c) Sigurd (Reyer). **8.30,** Chansonettes. **8.45,** Debussy Concert: Selection from L'Enfant prodigue; Prelude, a l'après-midi d'un Faune; Forgotten Melodies; Three Nocturnes; Three Songs. **9.30,** Accordion Music. **9.45,** Concert by a Viennese Orchestra. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco: Selection from Zampa (Hérold); Tomber amoureux (Boyer); Violin Solo, Piece (Ries); Melody from La Mascotte (Audran); Melody (Sponz); Waltz (Peyronnin). **11.0,** Choral Music. **11.15,** Opera Music; Ballet Music from Lakmé (Delibes); Overture, Mirella (Gounod). **11.30 to 12 Midnight,** Programme in English by the I.B.C., Mr. H. K. Hitchcock announcing. **11.30,** Waltzes. Waltz Potpourri; Tales from the Vienna Woods (Joh. Strauss); Wine, Woman and Song (Joh. Strauss); Selection from a Waltz Dream (O. Straus); Frühlingsstimmen; The Blue Danube; Wiener Blut; Ancliffe Waltz Favourites. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Saturday),** Musical Programme. **12.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**3.0 to 6.0 p.m.,** See **Turin. 6.0,** Variety Music on Gramophone Records. **6.20,** See **Turin. 6.35,** Orchestral Music from the Café Dante. **7.0,** till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres Genoa, 312.8 metres;** and **Florence, 500.8 metres. 3.0 p.m.,** See **Rome. 5.35,** Giornale Radio, Agricultural and Dopolavoro Notes. **6.0,** Gramophone Records of Variety Music. **6.20,** Giornale Radio. **6.30,** Time, Announcements, Report of the Royal Geographical Society and Light Music on Gramophone Records. **7.30,** Talk on Sport, followed by Gramophone Records (contd.). **8.0,** Symphony Concert, conducted by Willy Ferrero: The Seventh Symphony in A (Beethoven); Two Preludes (Rossellini); Fêtes (Debussy); Bolero (Ravel); The Ride of the Valkyries (Wagner). Talk in the interval. **10.0,** Giornale Radio.

VATICAN CITY

19.84 metres (Morning) and **50.26 metres (Evening);** 10 kW.—**10.0 to 10.15 a.m.,** Religious Information in German. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres,** and **Salzburg, 218.5 metres. 4.0 p.m.,** Concert: Gertrude Hauk (Soprano), Fanny Brandl (Violin), and Herta Reiss (Pianoforte). Part I—Songs: Zwischen dir und mir (Maux); Kennst du das auch (Maux); Arabian Love Song (Senn); Dämmerung (Senn); Wenn wir fremd uns werden (Skocic); Es singen die Weiden (Skocic); Geh' nicht, Geliebte (Pamer); Welteneinsamkeit (Pamer); Tanzlied (Rausch); Wann bricht an mein reifer Tag (Rausch). Part II—Chamber Music: Sonata, Op. 18, for Violin and Pianoforte (Reichel). **5.0,** Tourist Report. **5.15,** Ski-ing Report. **5.30,** Sports Notes. **5.40,** Programme to be announced. **5.55,** Talk: How the Cosmic Ultra Ray was discovered. **6.20,** Time, Weather and Programme Announcements. **6.30** (from **Linz**), Choral Concert by the German Folk Song Society and Soloists. **7.15,** Curt Elwenspoek reads from his own Works. Introductory Talk by Erwin Weill. **7.45,** Concert of Italian Music by the Vienna Symphony Orchestra, conducted by Caesare Nordio: Suite (Corelli); Sonata in D for Flute, String Orchestra and Harpsichord (Scarlatti); Nocturne and Gigue (Martucci); Songs from Le Poème de Bruges (Nordio): (a) Le lac d'amour, (b) Le beffroi; Comedy Overture (Busoni). **9.0,** News, Weather and Snow Report. **9.15,** Traffic Report. **9.25,** Dance Music by the Fred Clement Band, relayed from the Graben Café.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Bugle Call from St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Popular Music on Gramophone Records. **12.20 p.m.,** Weather Report. **12.25 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.25,** Aviation Notes and Anti-Gas Drill. **2.30,** Talk on Maritime and Colonial Affairs. **2.35,** Review of Periodicals. **2.50,** Light Music on Gramophone Records. **3.20,** Educational Talk: Mediæval Towns. **3.40,** Talk, relayed from **Cracow (312.8 metres). 4.0,** Concert by a Police Band, conducted by A. Sielski: Overture, (Eilenberg); Minuet (Paderewski); Selection from Il Trovatore (Verdi); Dervishes' Chorus (Sebek); Japanese Festival (Yoshitomo); Air from Tannhäuser (Wagner). In the interval, Announcements. **4.55,** Programme Announcements. **5.0,** Talk on Polish Literature. **5.20,** News. **5.25,** Light Music, relayed from the Café Italia. **5.50,** Ski-ing Notes, relayed from **Cracow. 6.0,** Miscellaneous Items. **6.20,** Polish and Foreign Agricultural Reports, relayed from **Wilno (563 metres). 6.30,** Talk. **6.45,** Radio Journal. **7.0,** Talk on Music. **7.15,** Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by G. Fitelberg. Soloist, Henry Szeryng (Violin). Symphonic Variations on Chopin's Prelude in A (Noskowski); Spanish Symphony for Violin and Orchestra (Lalo); Dance Suite (Sternicka-Niekrasz); Violin Solos: (a) Prayer (Handel-Flesch), (b) Prelude and Allegro (Pugnani-Kreisler), (c) Waltz (Chopin-Hubermann). In an interval: Literary Talk, **9.40,** Sports Notes. **9.45,** Radio Journal. **9.55,** Aviation Weather Report and Police Notes.

ZURICH.—See **Schweizerischer Landessender.**

SATURDAY

MARCH THE ELEVENTH

PRINCIPAL EVENTS OF THE DAY

AT HOME

NATIONAL	Running commentary on Rugby match: Ireland *v.* Wales, from Belfast. Music hall vaudeville programme.
LONDON REGIONAL	Military Band programme. Chamber music.
MIDLAND REGIONAL	Musical comedy programme. Pianoforte recital of the music of Saint Saëns.
NORTH REGIONAL	Running commentary on Rugby match: Swinton *v.* Warrington. L. & N.E. Railway Music Society's concert, from Sheffield.
WEST REGIONAL	Orchestral concert from National Museum of Wales.
SCOTTISH REGIONAL	Glasgow Caledonian Strathspey and Reel Society's concert.
BELFAST	Running commentary: Ireland *v.* Wales. "The Miracle Man," a play by Dr. F. Lyburn.

ABROAD

COPENHAGEN	9.15 p.m. Concert of light music, by the Station Orchestra.
HEILSBERG	7.10 p.m. Johann Strauss' Operetta Music in chronological sequence.
LEIPZIG	6.30 p.m. Choral concert, conducted by Karl Gerstenhauer.
OSLO	7 p.m. "Springtime," a revue relayed from the Chat Noir.
RADIO PARIS	8.45 p.m. Schumann pianoforte recital, by Léon Kartun.
STRASBOURG	5 p.m. Pasdeloup Symphony Concert, from the Théâtre des Champs Elysées, Paris.
STUTTGART	7.30 p.m. Operetta concert.
WARSAW	9.5 p.m. Chopin recital.

ATHLONE

413 metres; 60 kW.; and CORK, 224.4 metres.—**1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **2.45 to 4.0,** Running Commentary on the International Rugby Match—Ireland v. Wales—relayed from Ravenhill Park, Belfast. **6.15,** Gramophone Concert of Variety Music. **7.20,** News. **7.30,** Time Signal. **7.31,** Talk on Allotments. **7.45,** Gaelic Talk. **8.0,** Concert by the Station Orchestra. **8.30,** Tenor Solos by William Fortune. **8.50,** Pianoforte Recital by Madame Grossi. **9.5,** Folk Songs by Mme. Erni Ritter. **9.20,** The Station Orchestra. **9.40,** Fay Sargent—Songs and Stories. **10.0,** Villeann Pipe Solos by Leo Rowsome. **10.15,** The Station Orchestra. **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—6.0 p.m., Programme for Children. **7.0,** Request Gramophone Records. **7.30,** Exchange Quotations and Catalan Grammar Lesson. **8.0,** Light Music on Gramophone Records and News. **9.0,** Chimes from the Cathedral, Weather Forecast and Market Prices. **9.5,** Concert by the Station Orchestra: March, Fest und treu (Rust); Waltz, Galanterie (Leopold); Talaverana (Ibañez-Fandiño-Moras); Oriental Scene (Armandola). **9.30,** Programme from **Madrid (EAJ7). 11.0** (in an interval), News Bulletin.

BARI

270 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes; Tourist Talk; Dopolavoro Announcements and Sports Notes. **7.20,** Giornale Radio and News Bulletin. **7.30,** Time Signal and Announcements. **7.35** (approx.), Concert of Operetta Music and Songs; In the interval: Theatre Notes. **9.30,** Popular Music on Gramophone Records. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

BEOGRAD, 420.4 metres; 2.8 kW.—**4.0 p.m.,** Popular Music on Gramophone Records. **5.55,** Times and Programme Announcements. **6.0,** Recital of Yugoslav Songs by Bozidar Motrovic. **6.40,** Orchestral Concert. Overture, The Water Carrier (Cherubini); Potpourri, Von Wien durch die Welt (Bruby); Spanish Waltz, La gran vin (Lincke). **7.30,** Programme relayed from **Zagreb (307 metres). 9.0** (approx.), News, followed by Cigány Music, relayed from the Rudnicatin Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert from **Berlin (Witzleben). 2.0,** Programme for Children. **2.30,** Weather and Exchange. **2.45,** Reading (Hermann Hesse). **3.0,** Talk: Voluntary Work and Settlements. **3.30,** See **Hamburg. 4.10,** Review of the Week. **5.0,** Chamber Music—Trio, in A Minor, Op. 188, for Pianoforte, Oboe, and Horn (Carl Reinecke). **5.30,** Talk: Biographical Sketches of the Great Discoverers, Inventors, and Explorers—I, Fraunehofer. **5.55,** Weather and Announcements. **6.0,** Talk: The Church and Industry. **6.30,** A Poem. **6.35,** Concert of Favourite Modern Melodies, by the Claus Bothe Orchestra. **8.0,** See **Munich. 9.20,** Weather, News and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**3.0 p.m.,** Orchestral Concert, conducted by Bruno Seidler-Winkler: Overture, Undine (Lortzing); Ein Sonnentag (Reim); Two Melodies for Strings, Op. 53 (Grieg); Märkische Suite, Op. 92 (Knun). **3.50,** Third Act of The Mastersingers—Opera (Wagner), relayed from the Play House. **4.50,** Sports Notes. **5.0,** Clothes make the Man—Radio Play after Gottfried Keller's Novel. **5.55,** The Witzleben Station informs its Listeners . . . **6.0,** Topical Talk. **6.15,** Modern Occupants of Old Houses—Alfred Richard Meyer talks to the Tenants of Lessing's House, Kleist's House, Raabe's House and Kohlhaas' House. **6.45,** Hermann Simon Song Recital by Lula Mysz-Gmeiner, with Flute, Clarinet and 'Cello Accompaniment: Müde bin ich, geh zur Ruh; Wanderer; Trost der Nacht; Musiken Klang; Es tanzt ein Butzemann; Die fünf Hühnerchen; Kinderpredigt. **7.10,** Announcements. **7.15,** Talk: The Future Problems of Town and Country Parishes. **7.30,** Variety Programme, conducted by Alfred Braun. **9.15,** Weather, News and Sports Notes. **9.30** (approx.), Relay of the Adlerhorst Society's Ball from the Kroll-Festsäilen. **10.30,** Relay of the Hellas Rowing Club Ball from the Hotel Esplanade. **11.30** (approx.). Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

301 metres; 13 kW.—**7.30 p.m.,** Exchange Quotations, Market Prices and Lottery Results. **7.35,** English Lesson. **8.15,** News Bulletin. **8.30,** Relay from the Grand Theatre or Gramophone Concert.

BRATISLAVA

279 metres; 11 kW.—**3.10 p.m.,** Concert of Popular Music by the Station Orchestra, conducted by J. Odcházel. **4.10,** See **Prague. 4.20,** Light Music on Gramophone Records. **4.50,** Rudolf Dilong reads from his own Works. **5.5,** See **Prague. 5.25,** Gramophone Records of Variety Music. **5.45,** Talk for the Housewife. **6.0,** See **Prague. 6.30,** The Bird Fancier—Operetta in Three Acts (Zeller). **9.0,** See **Prague. 9.15,** See **Moravská-Ostrava. 10.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.**—**12.10 p.m.,** Gramophone Concert of Popular Music. **1.45,** Post Office Programme with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Film Notes. **3.30,** Orchestral Concert, conducted by Franz Marszalek: Suite, Beim Tanz der Nationen (Mannfred); The Dance of Pan (Juel-Frederiksen); Spanish Serenade (Welser); Foxtrot Potpourri, Wir tanzen Weltschlager! (Borchert); March, Heldenhaft! (Wagner); Waltz, Geschichten aus dem Eunstal (Paclernegg); Turkish Suite (Gauwin). **4.30,** Review of Books on International Politics. **4.50,** Educational Talk. **5.20,** Orchestral Concert, conducted by Franz Mafszalek: Overture, Die Berliner in Wien (Marszalek); Selection from Countess Maritza (Kálmán); Original Tyrolese Ländler (Trojan); Waltz from Gri-Gri (Lincke); Potpourri, Servus Wien! (Dostal). **6.30,** Weather for Farmers and Programme to be announced. **7.0,** Concert by the Silesian Philharmonic Orchestra. In an interval at **8.0,** Announcements. **9.0,** Time, Weather, News, Sports Notes and Programme Announcements. **9.30 to 11.0,** Concerts from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BRNO

342 metres; 35 kW.—**5.0 p.m.,** Theatre and Film Review. **5.15,** See **Prague. 5.25,** German Transmission: News and Talk on German Composers. **6.0,** See **Prague. 6.30,** See **Bratislava. 9.0,** See **Prague. 9.15,** See **Moravská-Ostrava. 10.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—**12 Noon,** Concert, relayed from the Grand Hotel, Antwerp. **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert: Peer Gynt Suite (Grieg); Nana (Falla); El Pano Moruno (Falla); Qui donc commande from Henry VIII (Saint-Saëns); La Prière des yeux clos (Baey); Selection from Le Jongleur de Notre Dame (Massenet); The Toreador's Song from Carmen (Bizet); Leyiz m'plorer (Van Damme); Selection from Die Fledermaus (Joh. Strauss). **5.0,** Concert by the Radio Orchestra, conducted by Charles Walpot: March (Sousa); Christiné Potpourri (Salabert); Waltz (Berger); Fanciful Etchings (Ketelbey); Serenade (Thill); Selection from I Pagliacci (Leoncavallo); Melody for Violin (De Taye). **6.0,** Talk: The Survival of the Fittest. **6.15,** Mozart Song Recital by Mlle. Floriaval: Two Songs from Figaro; Constance's Song from Il Seraglio; Song from The Magic Flute. **6.30,** Prelude, Choral and Fugue for Pianoforte (C. Franck), by Mlle. Rita Neama. **6.45,** Entr'acte—Sketch (André Blandin). **7.0,** Gramophone Records: Prelude to Le Déluge (Saint-Saëns); Si je le savais (Tchaikovsky); Spanish Dance from La Vida breve (Falla); Ronda aragonesa (Granados). **7.15,** Talk: Political Parties in France and Spain. **7.30,** Review of International Events. **8.0,** Li leye de djardini — Operetta in One Act (Detache). **8.35,** Concert by the Symphony Orchestra, conducted by M. Meulemans: Selection from Cydalise et le Chèvre-pied (Pierné). **8.45,** Readings by Sacha Guitry on Gramophone Records. **9.0,** Concert (contd.): Caprice rapsodique (Dupuis); La Guirlande des dunes (Vreuls), for Voice and Pianoforte; Wallonia (Guillaume); Selection from Le Petit Elfe Fermefocil (El. Schmitt). **10.0,** Le Journal Parlé. **10.10,** Light Music on Gramophone Records. **10.30,** Orchestral Concert, relayed from the Menuine Hall, Antwerp.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW. Programme in Flemish.—**12 Nocn,** Gramophone Concert: March (Ivanov-Ippolitov); Valse de Concert, Op. 47 (Glazunov); Variations, from Mozart to Hindemith (Lederer); Selection from Rigoletto (Verdi); Rondino (Beethoven-Kreisler); 'Cello Solos: Après un rêve (Fauré); Selection from Der Freischütz (Weber); Melody for Clarinet (Rabaud); Norwegian Dances (Grieg); Selection from The Mastersingers (Wagner). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert relayed from the Grand Hotel, Antwerp. **5.0,** Concert by the Symphony Orchestra, conducted by M. Meulemans. Overture, Rienzi (Wagner); Les Préludes (Liszt); Suite, The Flute of Sans-Souci (Graener); Melody from The Snow Maiden (Rimsky-Korsakov). **6.0,** Gramophone Records: March (Daudenard); Schön Rosmarin (Kreisler); Bulgarian Rhapsody, Vardar (Vladigerov). **6.15,** Book Review. **6.30,** Gramophone Records: Overture, Leonora, No. 3 (Beethoven); Concerto No. 5 in A Minor (Vieuxtemps); Valse triste (Sibelius); March, Entry of the Boyards (Halvorsen). **7.15,** Talk: Flemish Folklore. **7.30,** Agricultural and Horticultural Review. **8.0,** Swane—Opera (Schoemaker), relayed from the Royal Flemish Opera House, Antwerp. In the intervals at **8.45,** Recitations, and at **10.0,** Le Journal Parlé and Gramophone Records: Canzonetta (Mendelssohn); Allegretto from the Quartet in E Flat Minor (Tchaikovsky). **10.50,** Humorous Songs by Frans Lamoen. **11.5,** Light Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.— **5.25 p.m.,** Concert by the Sibiceano Orchestra. **6.0,** Talk: The National Bank of Romania. **6.40,** Light Music on Gramophone Records. **7.0,** Song Recital by Mme. Evantia Costinesco. **7.20,** Concert by the Radio Orchestra: Romanian Potpourri (Dinicu); Donauwellen (Ivanovici). **7.50,** Talk. **8.5,** Concert by a Balalaika Orchestra, conducted by M. Reabcic: Waltz (Rieder); Mazurka (Levancvsky); Potpourri of Romanian Melodies; Accordion Solo (Lincke); Russian Romance (Sarov); Marcia alla Turca (Mozart); Romance (Stefanesco); Romanian Dance. **8.45,** News.

BUDAPEST

550 metres; 18.5 kW. Programme also relayed on **840 metres** from **7.20** till Close Down.—**4.30 p.m.,** Concert by the Alexander Bura Cigány Band and Lajos Radics (Tarogato). **5.30,** Talk for Workers. **6.0,** Choral Concert. **6.40,** The Letter Box. **7.20,** Concert of Operetta Music: Selection from (a) Gasparone (Millöcker), (b) Der arme Jonathan (Millöcker), and (c) Die Försterchristl (Jarno); Waltz from Der kleine König (Kálmán); Goldblümchen (Huszka); Selection from The Chocolate Soldier (O. Strauss); Lied (Buttykay); Selection from (a) Paganini (Lehár) and (b) The Land of Smiles (Lehár); Two Songs from Janos Vitez (Kacsoh); Potpourri, Alexandra (Szirmai). **8.45,** News. **9.0,** Light Music on Gramophone Records. **10.50,** Concert by a Cigány Band, relayed from the Café Emke.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Time and Chimes from the Town Hall. **11.5,** String Ensemble Concert, conducted by A. Bendix, relayed from the Wivex Restaurant. **1.0 to 1.30 p.m.,** Interval. **1.30,** Gramophone Concert: Tancredi Pasero: Song from Ernani (Verdi); Maria Ivogün: Two German Folk Songs: (a) Gsätzli, (b) Maria auf dem Berge; Yehudi Menuhin: Campanella (Paganini); Einar Larson, Helga Görlin and Choir: Selection from Värmländingene (Dahlgren); Sven-Olof Sandberg: Song from Hungarian Nights (Brodzky); George Buck: Happy is the Corpse that the Sun shines on (Clifford-Cliff); Singing Babies: Ich lieb dich, I love you, je t'aime, from Baby (Lewis-Hannes). **2.0,** Programme for Children. **2.30,** Concert by Mogens Hansens' Instrumental Ensemble. Soloist: Willy Loudrup Jensen (Songs). Overture, Nebuchadnezzar (Verdi); Selection from The Three Musketeers (Friml); Waltz (Smetana); Entr'acte Gavotte (Gillet); Melody from The Seasons (Tchaikovsky); Chanson triste (Tchaikovsky); Russian Dance (Tchaikovsky); Songs; Overture, La petite Bohême (Hirschmann); Berceuse de Jocelyn (Godard); Waltz from Klein Idas Blumen (Klenau); Polonaise from Et Folkesagn (Gade); Serenade (Rygaard); Hungarian Comedy Overture (Keler-Béla). **4.40,** Exchange and Fish Market Prices. **4.50,** Talk on a Political Meeting in 1920. **5.20,** French Lesson for Beginners. **5.50,** Weather Forecast. **6.0,** News. **6.15,** Time Signal. **6.30,** Talk: The Modern Girl and her Home. **7.0,** Chimes from the Town Hall. **7.5,** Lange-Müller Concert by the Station Orchestra, conducted by Lanny Gröndahl: Prelude to Renaissance; Selection from Once upon a Time. **7.30,** Talk: Danish Activities. **8.0,** Song Recital by Ely Fischer Kjerulf. **8.15,** Operetta Music by the Station Orchestra, conducted by Lanny Gröndahl: Overture, La Princesse de Trébizonde (Offenbach); Selection from Les Cloches de Corneville (Planquette); March from Der arme Jonathan (Millöcker). **8.40,** Reading. **9.0,** News. **9.15,** Concert by the Station Orchestra, conducted by Lanny Gröndahl: Overture, La Sonnambula (Bellini); Waltz, Trifolien (Joh., Jos. and Ed. Strauss); Two Airs from Naila (Delibes); Pizzicato from Sylvia (Delibes); Hungarian Autumn Festival (Poldnanyi); Two Airs from Gretna Green (Guiraud); Selection from The Seasons (Tchaikovsky); Husarenritt (Spindler). **10.0,** Dance Music from the Lorry Etablissement. In the interval at **11.0,** Time and Chimes from the Town Hall. **11.15** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**12 Noon,** Light Music on Gramophone Records. **12.30 p.m.,** News Bulletin. **12.45,** Variety Concert. **6.0 to 7.0,** Programme in English by the B.B.C. C. Danvers Walker, R. Chene and F. McNabb announcing. **6.0,** Concert for Folkestone Listeners: The Cuckoo Waltz (Jonassen), The Devil Dance (Petersen); The Black Forest Chiming Clock (Doppler); The Wedding of the Birds (Petersen); Crazy Pirouette (Frisk); Gold Fishes (Kroeger); The Dance of the Raidrops (Reeves); The Clock is playing (Blaauw). **6.30,** Concert for Isle of Thanet Listeners: Violin Solos: Sleigh Bells (Lindeman); Hungarian Dance, No. 5 in G Minor (Brahms); Moment Musical (Schubert); The Lark (Tchaikovsky); Fairy on the Clock (Myers); Serenade to Nicolette; Melody (Gluck); La Capricieuse (Elgar); The Capricious Music Box (Fresco). **7.0,** Local News and Popular Music on Gramophone

Records, 7.30, Radio Gazette. 8.0, The Listeners' Half Hour and News Bulletin. 8.45, Violin and Pianoforte Recital. 10.0, Café Concert. 11.0 till Close Down, Programme in English by the I.B.C. 11.0, International Broadcasting Club Concert of Request Items: Let's put out the Lights and go to sleep; Just like in a Story Book; The Voice in the old Village Choir; With me Gloves in me Hand; I'm in the Market for you; Let's all dance the Polka; On a Dreamy afternoon; Baby's Birthday Party. 12 Midnight, Variety Music: Four Little Blackberries; Songs made famous by Vesta Victoria; All the Girls are lovely; Bow Bells; Mrs. Orsfield at home; I've had a good Day; Boys of the Loch; Teetotalers; Please Percy; Songs made famous by Mark Sheridan. 12.30 a.m. (Sunday), Songs: After the Ball; Handsome Gigolo; Let me sing and I'm happy; Rollin' down the River; Vipsaddyiay; Violet Eyes and Cherry Lips; To my Mammy; Dancing with Tears in my Eyes. 1.0, Pianoforte Solos; Tuneful Melodies; I found you; Puttin' on the Ritz; Let love take care of you; Duet; When the Circus comes to Town; Selection from The Cat and the Fiddle; One Night alone with you; Popular Selection. 1.30, Vocal Trios; You'll never realise; Today's a Sunny Day; Without a Song; Great Day; Painting the Clouds with Sunshine; Louise; Tiptoe through the Tulips. 2.0, I'll follow You; Isn't it Romantic; A Million Dreams; Mimi; I don't want to go to bed; Dreaming; What would happen to me?; Wanderer; The London Fire Brigade; Open up dem Pearly Gates; A Bedtime Story; Sailin' on the Robert E. Lee; Rock your cares away; Sweet Machucha; Nightfall; Let's all sing like the Birdies Sing. 2.57, I.B.C. Good-night Melody. 3.0 (approx.). Close Down.

FLENSBURG. See **Hamburg.**

FLORENCE. See **Turin.**

FRANKFURT

259 metres; 17 kW.; and **CASSEL, 245.9 metres;** and **TRIER, 259.3 metres.**—2.30 p.m., Programme for Children. 3.50, Exchange Quotations. 4.0 See **Munich.** 5.15, Exchange Quotations. 5.25, Are you going to fly in this Weather? —a Discussion between Dr. Orlovius, H. Brauer and Dr. Schmidt-Reps. 5.50, Dialogue: Self-Government in Agriculture. 6.15, Time, Programme Announcements, Weather and Exchange. 6.40, See **Stuttgart.** 9.0, Time, News, Weather and Sports Report. 9.45, Serenade from **Munich.** 11.0 (approx.). Close Down.

FREDRIKSSTAD. See **Oslo.**

FREIBURG. See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG. See **Stockholm.**

GRAZ. See **Vienna.**

HAMAR. See **Oslo.**

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres,** and **Kiel, 232.2 metres.** 3.30 p.m., Orchestral Concert, conducted by Jose Eibenschütz: Overture, Mignon (Thomas); Swedish Folk Song (Sandby); Ballet Music from The Cid (Massenet); Norwegian Dances Nos. 1 and 4 (Grieg); Selection from The Land of Smiles (Lehár); Waltz, Roses from the South (Joh. Strauss). 4.30, Radio Report on Shipping. 4.55, Talk: The Time Sea Story of the Week. 5.10, Talk for Country Women. 5.20 (from **Kiel**), Concert of Sacred Music by the Ansgar Children's Choir. Soloists: Luise Dinigen (Organ), Ferdinand Böhme and Max Schulz (Violins), and Richard Maatz (Flute). 6.0, Talk: Germany's Trade with Australia. 6.25, Weather. 6.30, Zither Concert, conducted by Albert Richter: Concert Overture No. 3 (Kollmaneck); Minuet from the Sonata in A Minor (Kollmaneck); Intermezzo, Am Märchenbrunnen (Kollmaneck); Two Pieces (Pugh): (a) Liebesgruss, (b) Mairöschen; Gavotte. Frühlingstraum (Schneider). 7.0, Variety Programme. 9.0, Time, Weather, Announcements, Sports Notes and Police Report. 9.30, Topical Talk. 9.40, Dance Music. 10.20, Ice Report. 10.25, Dance Music, relayed from **London.** 11.30 (approx.). Close Down.

HANOVER. See **Hamburg.**

HEILSBERG

276.5 metres; 80 kW.; and **DANZIG, 453.2 metres.**—12.5 p.m., Gramophone Concert. Vier Schlager auf einer Platte (Walter); Potpourri, Was jeder kennt (Dostal); Vier Schlager auf einer Platte (Walter); Die Schönbrunner (Lanner); The Angel's Serenade (Braga); Mia Bella (Sommerfeld); Ueber Berg und Tal (Sommerfeld); Selection from Coppélia (Delibes); Schenk mir doch ein kleines bisschen Liebe (Lincke); Ach Herr Schmitt (Carlos); Vier Schlager auf einer Platte (Walter); Zeig mir den Weg ins Paradies (Domina Caros); La bella Tangolita (Abraham-Grünwald); Es ist doch so schön am Abend (Abraham-Grünwald); Vier Schlager auf einer Platte (Joost); Maskenball im Gänsestall (May-Schwabach); Dream Sweetheart (Green); Wach auf du neuer deutscher Geist (Ziegler-Falkenstein); Hindenburg-Marsch (Elsner). In the interval at 12.20 p.m., News, 1.30, Programme with Gramophone Records, arranged by the Post Office. 2.0, Agricultural Prices and Exchange Rates. 2.30 (from **Danzig**), Handwork for Children. 3.0, Concert, relayed from **Berlin (Witzleben).** In the interval at 3.50 (approx.), Book Review. 5.0, Programme Announcements. 5.10, Programme Announcements in Esperanto. 5.15, Agricultural Prices. 5.20, Ice Report. 5.30, World Market Prices. 5.45, Talk on Friedrich Wilhelm I and Friedrich II of Prussia. 6.15, Talk with Gramophone Records: Haydn's Spieldur. 7.0, Weather and News. 7.10, Johann Strauss' Operetta Music Chronological Sequence (arr. Kurt Liesing and Karl Hruletz), by the Small Station Orchestra, conducted by Karl Hruletz and Soloists. 9.10, Weather, News and Sports Notes. 9.30 (approx.), Dance Music from **Berlin (Witzleben).** 11.30 (approx.), Close Down.

HILVERSUM

Announced **HUIZEN, 296.1 metres;** 20 kW. (7 kW. up to **4.40 p.m.**).—Programme of the Catholic Radio Society (K.R.O.). 11.55 a.m., Concert by the Con Brio Trio. Serenade (Pierné); Simple aveu (Thomé); Was die donau erzählt (Morena); Minuet (Bolzoni); Selection from Samson and Delilah (Saint-Saëns); Soirée intime (Lincke); Gramophone Records; Rossini Potpourri (Urbach); Ave Maria (Schubert); Waltz (Durand); Finale. 12.25 p.m., Interval. 1.40, Programme for Young People. 2.10, Programme for Children. 3.40, Concert by the K.R.O. Boys, conducted by P. Lustenhouwer. Soloist: J. Mossel (Songs). Heil Europa (Blon); Wenn du liebst (Stefan); Potpourri, Reife Früchte (Morena); Two Melodies (Abraham). 4.40, Recitations. 4.55, News in Esperanto. 5.10, Concert by the K.R.O. Boys (contd.). Immer so weiter (Borgmann); Lied vom Wien (Katscher); Al mio villaggio laggiu (Buchmann); Overture, Das blaue Bild (Lincke); In a Turkish Bazaar (Dreyer); English Waltz (Glan). 5.40, Recitations. 6.0, Press Review. 6.20, Concert (contd.). Atlantis (Robrecht); Dreaming (Flanagan); Frohsinn auf den Bergen (Fetras); A Perfect Day (Bond); Selection from Drei von der Kavallerie (Erwin); My Hiking Girl (Sarony). 6.50 Talk. 7.10, Police Notes. 7.25, Sports Notes. 7.40, Concert by the K.R.O. Orchestra, conducted by M. van 't Wond. Kling, Klang goldner Wein (Zimmer); Overture, The Thieving Magpie (Rossini); O Frühling wie bist du so schön (Lincke); Die Bajadere (Lincke); Notenregen (Urbach); Colombine (Dufort); Etepstete (Dufort); Selection from The Rose of Stamboul (Fall); In the interval, News. 8.40, Songs by Joe and Nelli. 9.0, Orchestral Concert (contd.). La lettre de Manon (Gillet); Gavotte (Gillet); Selection from Les cloches de Corneville (Planquette); Narcissus (Nevin); The Rosary (Nevin); Waltz, Estudiantina (Waldteufel); Selection from Coppelia (Delibes). 9.50, Songs by Joe and Nelli. 10.10, Orchestral Concert (contd.). Selection from Polenblut (Nedbal); Wien bleibt Wien (Schrammel). 10.40, News. 10.45, Variety Music on Gramophone Records. 11.40 (approx.), Close Down.

HORBY. See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres;** 8.5 kW. 11.40 a.m. till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). 11.40, Concert, Comrades (Rosey); Künstlerleben (Strauss); Vegső Szerelem (Gungl); Old Viennese Dances (Strauss); Dornröschens Hochzeitszug (Rhode); Hungarian Dance (Brahms). 12.10 p.m., Popular Music on Gramophone Records. 12.25, Organ Recital by C. Steyn. 12.55, Light Music on Gramophone Records. 1.10, Organ Recital (contd.). 1.40, Interval. 1.55, Popular Music on Gramophone Records. 2.30, Talk. 2.50, Talk on Music with Illustrations. 3.25, Concert by a Children's Choir and Soloists: M. de Klijn (Violin), and M. C. Steyn (Pianoforte). 4.25, Organ Recital. 4.40, Choral Concert (contd.). 5.40, Provincial Programme, Songs and Address. 6.10, Organ Recital (contd.). 7.10, Talk. 7.40, S.O.S. Announcements. 7.45, Variety Concert; Song, Das ist die Sonne von Arkadien (Stolz); Chinatown (Gerrebos); Wenn wieder Frühling ist (Abraham); Wie ist es so schön doch am herrlichen Rhein (Hummel); You Rascal you (Theard); Waldteufel Potpourri (Lehmann-Mulder); Mir gefällt jede Frau (Gross); Nur die Eine (Krauss); March (Friml); Items by The Village Barber; Song; Dramatic Items; Orchestral Music; Address; Selection from (a) Les Saltimbanques (Ganne), and (b) Les Dragons de Villars (Maillart); Waltz, Fortissimo (Kálmán); March from The Merry Widow (Lehar); Rustle of Spring (Sinding); The Cuckoo Waltz (Jonasson); March Potpourri (Winter). In the intervals at 10.35, News; and at 10.50, Announcements and Football Results. 11.5, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG. See **Copenhagen.**

MARCH 11th SATURDAY *continued*

KATOWICE

408 metres; 16 kW.—4.0 p.m., The Children's Letter Box. 4.25, Gramophone Records of Light Music. 4.40, See **Warsaw.** 6.0, Announcements and Gramophone Records. 6.10, Scientific Talk. 6.30, See **Warsaw.** 10.35, Dance Music.

KAUNAS

1,935 metres; 7 kW.—6.30 p.m., Concert. Overture to a Revue (Lincke); Waltz, Erinnerungen (Büring); Intermezzo, Die Fahrt ins Glück (Jessel). 7.10, Talk on Social Etiquette. 7.30, Dance Music, followed by Sports Notes. 8.40, Musical Programme. Symphony in E Flat (Mozart); Overture, Oberon (Weber). 9.30 (approx.), Close Down.

KIEL. See **Hamburg.**

KLAGENFURT. See **Vienna.**

KOSICE. See **Prague.**

LAHTI

1,796 metres; 10 kW.; and **HELSINKI, 368.1 metres.**—5.50 p.m., Sports Talk. 6.15, Concert by the Station Choir. 6.35, Dramatic Programme. 6.50, Dance Music by the Amarillo Orchestra. 7.45, News in Finnish. 8.0, News in Swedish. 8.15, Dance Music by the Tampere Military Jazz Band and the Orpheon Orchestra. 10.0 (approx.), Close Down.

LANGENBERG

473 metres; 60 kW. 12 Noon, Concert, conducted by Woll: Festival Overture (Lassen); Gioietta's Song to the Lute (Korngold); Song from Die tote Stadt (Korngold); First Suite from L'Arlésienne (Bizet); Albumblatt und Träume (Wagner); Schubert Fantasia (Zimmer); Waltz, Seid umschlungen, Millionen (Joh. Strauss); Selection from Das süsse Mädel (Reinhardt). In an interval at 1.0 p.m. (approx.), Announcements. 1.35, Variety Music on Gramophone Records. 2.30, Economic Notes and Time Signal. 2.50, Programme for Children. 3.10, Book Review. 3.30, English Reading. 4.0, A Musical Journey Orchestral Concert, conducted by Spitz; Soloists: Aramesco (Tenor) and Wocke (Baritone). 5.20, Talk for Women. 5.45, Weather, Time, Economic Notes, and Sports Notes. 6.0, Talk: Italy and Yugoslavia. 6.20, The World on Gramophone Records Songs and Dances of the Southern Slavs. 6.55, Announcements. 7.0, Masters of their Craft Gramophone Concert. 8.0, See **Munich.** 9.15, Announcements and Sports Notes. 9.30, Soloist Concert. 10.30, Serenade on Gramophone Records. 11.0 (approx.), Close Down.

LAUSANNE. See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN, 319 metres.** 12.15 p.m., Gramophone Concert: The Barber of Bagdad (Cornelius); Selection from Il Trovatore (Verdi); Overture, Susanna's Secret (Wolf-Ferrari); Selection from Hansel und Gretel (Humperdinck); Overture, The Gipsy Baron (Joh. Strauss); Hungarian Rhapsody No. 2 (Liszt); followed by Exchange Quotations. 1.0, Wireless Notes. 1.30, Programme for Children. 2.15, Chess Lesson. 2.45, Economic Notes. 3.0 to 3.15, Music Notes. 3.30, Concert relayed from **Berlin (Witzleben).** 5.0, Legal Talk for Women. 5.30, German for Germans. 5.50, Topical Talk. 6.0, Talk: Excavations in the Geiseltal. 6.30, Choral Concert, conducted by Karl Gerstenhauer. Siehst du das Meer; Swedish Folk Song, Am Aarensee (arr. Willy Herrmann); Eighteenth Century Folk Song, Die Gedanken sind frei (arr. Kelchorter); Folk Song, Ich spring in diesem Ringe (arr. Schreck); Heimweh (Hoffmann); Liebesgedanken (Trunk); Ja, schön ist mein Schatz nicht (Schwartz); Maderl mit dem schwarzen Mieder (Schumacher); Allerlei und Allerhand (Hausen); Folk Song, Ubermut (arr. Wohlgemuth). 7.0, Relay of a Variety Programme. 9.5, News, followed by Dance Music. 11.0 (approx.), Close Down.

LINZ. See **Vienna.**

LWOW

381 metres; 16 kW.—5.55 p.m., Talk. 6.10, Miscellaneous Items. 6.30 to 11.0, See **Warsaw.** 11.0 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW. 7.30 p.m., Radio Gazette for Lyons and the South-East. 8.30, Concert by l'Harmonie du Rhone, relayed from the Salle Rameau. After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—6.0 p.m., Popular Concert. 7.15, Talk. 7.30, Dance Music. 8.0 to 10.30, Interval. 10.30, Pianoforte Recital, followed by Variety Music. 11.35, Talk. 11.45, Light Music. 12 Midnight (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 7 kW. 7.0 p.m., Chimes; Exchange Quotations and Request Gramophone Records. 8.15, News Bulletin. 8.30 to 9.0, Interval. 9.0, Linguaphone English Lesson. 9.30, Chimes; Time Signal and Transmission of a Musical Comedy. 11.45, News Bulletin. 12 Midnight, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW. 5.25 p.m., Brass Band Concert by Unemployed Musicians. Conductor: V. Cerny. 6.0, See **Prague.** 6.30, See **Bratislava.** 9.0, See **Prague.** 9.15, Radio Film—Programme of Songs, Instrumental Solos and Music by the Station Orchestra, conducted by J. Plichta. 10.30 (approx.). Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—4.30 p.m., Seventy-two Days. 5.30, Concert from the Conservatoire. 8.0, Talk in French: The Principles of School Education.

MOTALA.—See **Stockholm.**

MUHLACKER. See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres,** and **Nürnberg, 239 metres.** 4.0 p.m., Orchestral Concert, conducted by Ernst Hagel: Overture, The Nuremberg Doll (Adam); Suite in Old Style (Schröder); Waltz, Flattergeister (Jos. Strauss); Intermezzo, Die Kätzchen (Siede); Potpourri, Besuch bei Millöcker (Morena); Students' March (Siede). 5.0, Programme for Young People. 5.45, The Gregorian Chant—Talk with Illustrations (II). 6.20, Wireless Notes. 6.35, Technical Wireless Talk. 6.50, Variety Music on Gramophone Records. 8.0, Mozart and Salieri—Dramatic scenes, Op. 48 (Rimsky-Korsakov), by the Radio Orchestra, Choir and Soloists. 9.20, Time, Weather, News and Sports Notes. 9.45, Serenade, conducted by Erich Kloss. 11.0 (approx.), Close Down.

NAPLES. See **Rome.**

NOTODDEN. See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres;** and **Rjukan, 447.1 metres.** 3.15 p.m., Concert by the Station Orchestra: March, Sambre et Meuse (Turlet); Overture, Marinarella (Fucik); Waltz, The Blue Danube (Joh. Strauss); Potpourri, Vindobona (Leopold); Berceuse (Fjelstad); Selection from Phi-Phi (Christiné); Serenade from Les Millions d'Arlequin (Drigo); Medley of Old Norwegian Military Marches. 4.15, Programme for Children. 5.15, Song and Hardanger Fiddle Recital of National Music. 5.45, Economic Notes. 6.0, Announcements, Weather and News. 6.30, Talk. 7.0, Springtime Act I, a Revue relayed from the Chat Noir. 8.10, Topical Talk. 8.20, News and Weather Report. 8.40, Revue (contd.). Act II. 9.45, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND. See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—7.0 p.m., Dopolavoro Notes; Tourist Talk; Agricultural Notes and Giornale Radio. 7.20, Sports Notes. 7.30, Time and Announcements. 7.35, Popular Music on Gramophone Records. 7.45, Fredérica, Operetta in Three Acts (Lehar); In the intervals; Book Review and Amusement Guide; After the Operetta: News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at 9.26 a.m. and 10.26 p.m. (Preliminary and Code Signals).—5.45 p.m., Le Journal Parlé. 7.20, Weather Report. 7.30, La famille Benoiton Comedy (Sardou). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—6.45 p.m., Journal Parlé. 7.0, Answers to Correspondents. 7.5, Gramophone Concert of Popular Music. 8.0, Talk: The Event of the Week. 8.5, Theatre Review. 8.15, Interval. 8.30, Chamber Music. 9.0, Interval. 9.10, Dance Music by the Sonora Band, conducted by Fred Hoffmann. 11.0, Dance Music on Gramophone Records. 12 Midnight (approx.), Close Down.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Light Music on Gramophone Records. 8.0, Press Review and Weather. 9.0, Concert relayed from the Conservatoire. 12 Noon, Concert by the Radio Paris Orchestra: Rincones de Sevilla (Turina); Two Old Dutch Dances (Heykens); In a Turkish Bazaar (Dreyer); Yvain Potpourri; Suite exotique (Delmas-Popy); Greek Dance (Ganne); Persian Scenes (Rust); Hawaiian Waltz (Hubene); The Consecration (Vitadini); Overture, Gipsy Love (Lehár). In the intervals, at 1.0 p.m., Exchange, News, and Weather, and at 1.30, Exchange. 3.0, Programme for Children. 3.45, Exchange and Market Prices. 3.50, Dance Music by the Radio Paris Or-

chestra. 6.30, Market Prices, Weather, and Exchange. 7.0, Science Talk. 7.20, Agricultural Talk. 7.45, Commercial Prices, News, and Review of the Latin Press. 8.0, Variety Programme. 8.30, News and Weather. 8.45, Schumann Pianoforte Recital by Léon Kartun: Carnaval, Arabesque, Novelette No. 2. 9.15, Press Review and News. 9.30, Gramophone Dance Music: Dinah; Tango d'amour; Tango, El Gaucho; Waltz, L'heure exquise; Foxtrot, Come with me; Onestep, On the Accordion; Waltz, Pluie d'or (Waldteufel); Slow Foxtrot: Waltz, Tesoro mio (Becucci); Melody; Tango, Plegaria; Slow Foxtrot, A Tear; Waltz, Fascination (Marchetti); Foxtrot, Sweetness; March, Sublime Belgique.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.**, Dance Masters, from **New York.** 9.30, Concert Favourites, from **New York.** 10.0, Programme to be announced. 10.30, Weather Report. 10.32, Behind the Law—Tales of the Pennsylvania State Police. 10.45, Little Orphan Annie, from **New York.** 11.0, Programme to be announced. 11.15, Time Signal. 11.16, Temperature Report. 11.17, Teaberry Sport Review. 11.22, Press News Reeler. 11.27, Strange Facts. 11.29, Weather Report. 11.30, Programme to be announced. 11.45, A Reeler by Bill and Alex, of the Downtown Y.M.C.A. 11.59, Time Signal. **12 Midnight,** Fields and Hall, from **New York.** 12.15 **a.m. (Sunday),** Atkinson String Ensemble. 12.30, Programme to be announced. **12.45 to 4.0, New York** Relay. 12.45, Townshend Murder Mystery. 1.0, American Taxpayers' League. 1.15, The Boston Symphony Orchestra. 3.15, Salon Singers. 3.30, Cuckoos. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News. 4.20, Messages to Dwellers of the Far North.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.**, See **Bratislava.** 4.10, Talk on Economics. 4.20, Czech Lesson for Germans and German Lesson for Czechs. 4.50, Variety Music on Gramophone Records. 5.5, Agricultural Talk. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission: Extracts from the Works of Contemporary German Dramatists. 6.0, Chimes. 6.1, News Bulletin. 6.10, Talk: The Czech Language. 6.30, See **Bratislava.** In the interval at 8.0, Time Signal. 9.0, Time Signal. 9.1, News Bulletin. 9.15, See **Moravská-Ostrava.** 10.30 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.**—**5.0 p.m.** (from **Geneva**), Talk: The Scientific Possibilities of a Journey to Mars. 5.30 (from **Lausanne**), Book Review. 6.0 (from **Lausanne**), Weather Forecast, News, and Announcements. 6.30 (from **Lausanne**), Talk on Films. 7.0 (from **Lausanne**), Orchestral Concert, conducted by Léon Rairer. 7.30 (from **Lausanne**), La Dernière Nouvelle—Comedy in One Act (Langlois). 8.0 (from **Geneva**), Popular Concert. 9.0, News Bulletin and Weather Forecast. 9.10 (from **Geneva**), Talk: The Work of the League of Nations. 9.20 (from **Geneva**), Dance Music. 10.30 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—**8.30 p.m.**, Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes and News. 9.30, Reading. 10.0, Concert by the Station Quartet, followed by Choral Music on Gramophone Records. After the Programme, Dance Music. **1.0 a.m. (Sunday),** (approx.), Close Down.

RIGA

525 metres; 15 kW.—**4.30 p.m.**, Organ Recital: Prelude and Fugue in D (Bach); Largo (Pergolesi); Chanson triste (Nowoweijsky); The Third Sonata (Mendelssohn); Choral. 5.0, French Lesson. 5.28, Weather Forecast. 5.30, Relay from the Arts Theatre. News in the intervals. In the interval at 8.0, Weather. 8.30, Dance Music. 10.0 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres,** and **2RO, 25.4 metres.**—**7.0 a.m.**, Gymnastics. 7.15 to 7.30, Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. **12 Noon,** Time and Announcements. **12.2 to 1.15 p.m.**, Orchestral Concert: Manicotto (Vigevani); Luisita (Barzizza); Italian Suite (Kostal); Bisanzio (Carabella); Quando (Mangeri); Selection from No, No, Nanette (Youmans); O dolce valzer (Restano); Wedding of the Butterflies (Barron); Waltz Serenade (Sadun); Fa la cortesia (Mascheroni). 3.45, Children's Radio Revue and Talk for Young People. 4.0, Exchange; Report of the Royal Geographical Society, and Giornale Radio. 4.15, Reading. 4.30 to 5.15, Orchestral Concert: Overture, The Thieving Magpie (Rossini); Bella d'oltre mare (Zanuso); Selection from Boris Godunov (Mussorgsky); Melody (Caslar); Violin Solo: Polichinelle (Kreisler); La falena (Escobar); Ora sai cos'è l'amore (Varinska); Mago Carnevale (Marchionni). **6.0 (Naples),** Shipping and Sports Notes. 6.10, Atmospheric Signals and Lesson in Morse. 6.20, Giornale Radio and Agricultural News. 7.0, Time and Announcements. 7.15, Pianoforte Recital by Cesarina Buonerba: Foglio d'album (Pizzetti); Ronda degli Arlecchini (Pick-Mangiagalli); Rumores de la Caleta (Albéniz); La danza di ranocchietto verde (Santoliquido). 7.30, Sports Notes and Tourist Report. 7.45, Relay from a Theatre. In the intervals, Review of Books, Literary Review, and News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.**—**12 Midnight,** El Tango Romantico, from **New York.** 12.15 **a.m. (Sunday),** Municipal Series. 12.30, Hotel New Yorker Orchestra, from **New York.** 12.45, The World To-day, from **New York.** 1.0, Lady Fingers (Pianists). 1.15, Bernard Silberg ('Cellist). 1.30 till Close Down, **New York** Relay. 1.30, The Economic World To-day. 2.0, Blue Danube. 2.30, Oldsmobile Programme—George Olsen's Orchestra. 3.0, Lucky Strike Hour and Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW. **Basle, 244.1 metres;** and **Berne, 245.9 metres.** 11.28 **a.m.**, Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40, Popular Music on Gramophone Records. 12.35 **p.m.**, Weather and Exchange. 12.45 from **Zürich),** Answers to Correspondence. 1.0, (from **Zürich**), Review of New Books. 1.30 (from **Zürich**), Songs by the Vienna Mandl Quartet. 2.0 (from **Zürich**), Talk on Hygiene. 2.30 (from **Zürich**), Mathematical Puzzle. 3.0 (from **Zürich**), Concert by Sigg's Accordian Sextet. 3.40 (from **Zürich**), Talk: Modern Road Making. 4.0, Popular Music on Gramophone Records. 4.30 to 4.35, Sports Notes. 5.30 (from **Basle**), Yvette Turner recites Negro Poetry. 6.0 (from **Zürich**), Chimes, Time, Weather and Market Prices. 6.15 (from **Basle**), Talk: Autocracy and World Trade. 6.45 (from **Basle**), Vocal and Instrumental Concert of Music of the Sixteenth, Seventeenth and Eighteenth Centuries; The Holles Madrigal Society of Stuttgart conducted by Hugo Holles; Soloists, Else Popp (Treble Viol), Adolf Hamm (Harpsichord). 8.15 (from **Basle**), Hans Visscher van Gaasbeek reads Sonnets of Michael Angelo. 8.30, Weather and news. 8.40 (from **Basle**), Concert by the Meister Accordian Club of Basle. 9.10, Dance Music and Cabaret Programme on Gramophone Records. 10.0 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Goteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.**—**3.0 p.m.**, Concert of Light Music: Slovak March (Nernda); Overture, Athalie (Mendelssohn); Waltz, Sphärenklänge (Jos. Strauss); Piece (Wesslander); Melody (Atterberg); Waltz Intermezzo, Ein Ballnachtstraüm (Translateur); Tango, Wie schön beim Tanz deine Wangen glühn (Brosch); Selection from Where the Lark sings (Lehár). 4.5, Programme for Children. 4.30, Variety Music on Gramophone Records. 5.0, Talk from **Malmö (231 metres).** 5.15, Light Music. 6.15, Weather and News. 6.30, Old Time Dance Music from **Falun (307 metres).** 7.0, A Revue relayed from **Goteborg.** 8.15, Popular Programme. 9.0, Modern Dance Music. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.**, Orchestral Concert, conducted by Maurice de Villers: Ballet Music from Faust (Gounod); Overture, La Dame blanche (Boieldieu); Scherzo (Lalo); Selection from Othello (Verdi); Minuet in G (Moszkowsky); Orchestral Suite from Der Rosenkavalier (R. Strauss); Hungarian March from The Damnation of Faust (Berlioz). **12.45 p.m., News.** 1.0, Time and Exchange. 1.5, Gramophone Concert: Yankee Rose (Frank); Blue Skies (Berlin); Escamillo (Goldberg); Minuet (Ferret); Les tziganes (Scriabin); Zazoulia (Scriabin); Gouttes d'eau (Petit); Melody (Koch); Stephanie Gavotte (Czibulka); Etoile d'amour (Delmet); Muchachada (Chirlanda); Arrabal (Maffia); Caucasian Melody (Scriabin); Koubaque (Rodiosoff); Melody (Brown). 2.0, Dance Music on Gramophone Records. 3.0 to 3.45, Interval. 3.45, Talk: The Lyrical Quality of Brahm's Music. 4.0, Light Music on Gramophone Records. 4.45, Legal Talk in German. 5.0, Pasdeloup Symphony Concert, relayed from the Théâtre des Champs Elysées, Paris. 7.0, French Elocution Lesson. 7.15, Agricultural Talk in French. 7.30, Time and News. 7.45, Lottery Results. 8.0, Talk on the Abbé Prévosts' Novel, Manon Lescaut, illustrated by Gramophone Records. 9.15, Il est charmant (Moretti)—Film Relay. 11.0, Jean Clergue Quintet Concert, relayed from **Radio Coloniale (Paris) (25.63 metres). 12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.**—**1.0 p.m.**, Songs and Duets from Lehár's Operettas by Elisabeth Jentsch (Soprano) and Karl Jantz (Tenor). 1.30, Time, News, Weather, and Programme Announcement. 1.45, Concert by a Children's Choir, relayed from **Mannheim**: Songs (Hausmann). (a) Der Zirkus, (b) Klitsch, Klatsch, (c) Gute Nacht; Songs (Haas). (a) Die Bremse, (b) Kaninchen, (c) Katzenmusik, (d) Lustiger Rat; Songs (Hausmann). (a) Die Schule, (b) Der Sonntagsjäger, (c) Tante Ruth. 2.30, See **Frankfurt.** 3.30, Concert by a Month Organ Orchestra: Königgrätzer Marsch (Pielke); Wiener Praterleben (Translateur); Muttersegen (Opladen); March, Frei weg (Latann); English Waltz, Sei mir Gegrüszt (Grothe); Koburger Marsch. 4.0, See **Munich.** 5.0, Popular Music on Gramophone Records. 5.15, Time and Sports Notes. 5.25, Talk. 5.50, Talk: The Exchange of Pupils between German and Foreign Schools. 6.15, Time, News, Weather, and Snow Report. 6.40 (from **Freiburg**), Soldiers' Songs—Recital by Bruno Korell. 7.30, Concert of Operetta Music by the Stuttgart Philharmonic Orchestra, conducted by Gustav Görlich, and the Station Choir: Soloists, Gerda Hansi, Hedwig Picard, Maria Fiechtl, Emma Mayer, Hans Hanus, Walter Mauer, and Hans Hofele: Overture, Pique Dame (Suppé); Duet and Ensemble from The Bird Fancier (Zeller); Three Songs from The Gipsy Baron (Joh. Strauss); March from Boccaccio (Suppé); Sextet from Wiener Blut (Joh. Strauss); Dunkelrote Rosen from Gasparone (Millöcker); Second Finale from Die Fledermans (Joh. Strauss). 9.0, Time, News, Weather, Snow Report, and Programme Announcements. 9.20, Radio Report on the Greater Stuttgart Gymnastics and Sports Festival. 9.45, Serenade, relayed from **Langenberg.** 11.0 (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI; 385 metres; 8 kW.—**6.0 p.m.**, News Bulletin. 6.15, Operetta Music. 6.30, Songs from Sound Films. 6.45, Symphonic Poem, Mazeppa (Liszt). 7.0, Spanish Song Recital. 7.15, Racing Results, Market Prices, and News. 7.25, Local News Bulletin. 7.30, Concert by a Viennese Orchestra. 8.0, Concert. Part I: Opera Music: Recitative and Cavatina from Figaro (Mozart); Aria from Tosca (Puccini); Song from I Pagliacci (Leoncavallo). Part II: Persian March (Strauss); Ich liebe dich (Grieg); Melody (Schrammel). 8.30, Operetta Music; Airs from: (a) La Moscotta (Andran), (b) Miss Decima (Andran), (c) La Basoche (Messager). 8.45, Light Orchestral Music. 9.0, Concert. Part I: Extracts from Hérodiade—Opera (Masseiret). Part II: Symphony Music: Norwegian Rhapsody (Lalo); Selection from The Queen of Spades (Tchaikovsky); Berceuse from The Firebird (Stravinsky). 10.0, Sound Film Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco: Les Fleurs (Waldteufel); Air from Paganini (Lehár); Overture, Raymond (Thomas); Melody (Marafiotti); Marche joyeuse (Chevelier). 11.0, Popular Concert. 11.30 to 12 Midnight, Programme in English, by the I.B.C. H. K. Hitchcock announcing. 11.30, Variety: The Scout; Laughing Clara; My Fiddle is my Sweetheart; Sandy the Tram Conductor; Blue Hawaii; Guilty; There's a good time coming; Let's all dance the Polka. 11.57, I.B.C.—Good night Melody. **12 Midnight,** Weather and Announcements. 12.5 **a.m. (Sunday),** Musical Programme. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**4.10 to 6.0 p.m.**, See **Turin.** 6.0, Variety Music on Gramophone Records. 6.20 to 6.35, See **Turin.** 6.35, Pianoforte Recital of the Ultra-Modern Music of Erwin Schulhoff; Pianist, Liliam Caraian. 7.0 till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 508.8 metres.**—**4.10 to 5.0 p.m.**, Dance Music from the Savoia, Turin. 5.35, Giornale Radio, Agricultural and Dopolavoro Notes. 6.0, Gramophone Records of Orchestral Music. 6.20, Giornale Radio. 6.30, Time, Announcements; Tourist Report and Light Music on Gramophone Records. 7.0 Giornale Radio; Weather and Gramophone Records (contd.) 7.30, Talk: Events and Problems. 7.45, Variety Programme; Review of New Books; in the interval, 9.0, Orchestral Concert. 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and **50.26 metres (Evening);** 10 kW.—**10.0 to 10.15 a.m.**, Religious Announcements in Different Languages. 7.0 to 7.15 **p.m.**, Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenturt, 453.2 metres; Linz, 245.9 metres,** and **Salzburg, 218.5 metres.**—**4.0 p.m.**, Concert of Light Music by the Fritz Reckteswahl Orchestra and the Schmatzer Quartet. 5.35, Talk: Our Spring Flowers. 5.55, Topical Talk. 6.25, A Maxim. 6.30, Time, Weather, Sports Notes and Programme Announcements. 6.40, Song Recital by Anna Roselle: Nedda's Aria, Qual fiamma avea nel guardo from I Pagliacci (Leoncavallo); Songs (Marx): (a) Hat dich die Liebe berührt? (b) Japanisches Regenlied; Recitative and Aria, Deh! vieni, non tardar, from Figaro (Mozart); Manon's Aria, In quelle trine morbide, from Manon Lescaut (Puccini); Mutinata (Leoncavallo); Rondine al nido (des Crescenzo); Torna amore (Buzzi-Peccia); Song, Ich bin verliebt, from Schön ist die Welt (Lehar). 7.15, Die tolle Therese—Operetta in Two Acts on Motives from Joh. Strauss, Senior (Otto Römisch). 9.0, In an interval at 8.15 (approx.), News. Weather and Announcements. 9.15, Dance Music by the Jean Litwins Syncopators and the Los Pamperos Tango Band, relayed from the Cafe de Paris.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.**, Time Signal and Bugle Call from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Light Music on Gramophone Records. 12.10 **p.m.**, Weather Forecast. 12.15, Programme, relayed from **Lwow (381 metres)** 12.55 to 2.10, Interval. 2.10, Announcements. 2.15, Economic Notes. 2.25, Military Information. 2.35, Reading for Young People, relayed from **Cracow (312.8 metres).** 3.0, Light Music on Gramophone Records. 3.20, History Talk. 3.40, Financial Talk. 4.0, Programme for Invalids, relayed from **Lwow.** 4.30, Announcements. 4.40, Topical Talk. 4.55, Programme Announcements. 5.0, Talk on Polish Literature. 5.20, News. 5.25, Light Music, relayed from the Cristal Restaurant. 6.0, Miscellaneous Items. 6.20, Agricultural Report. 6.30, Topical Talk. 6.40, Radio Journal. 7.0, Light Orchestral Concert, conducted by S. Nawrot: Soloists: I. Fogg (Songs) and M. Orzechowski (Vibraphone). In the interval, Sports Notes and Radio Journal. 9.5, Chopin Recital: S. Zmigrodi-Fedyczkowska (Soprano), M. Wiszomirska (Pianoforte) and C. Wilkomirski (Violin); Songs; Concert Duet in E for Pianoforte and 'Cello on Themes from Robert le Diable. 9.40, Talk on Historic Slovak Castles. 9.55, Aviation Weather Report and Police Notes. 10.0, Dance Music from the Bodega. In the interval at 10.30, News for Members of the Polish Polar Expedition.

WILNO

563 metres; 16 kW.—**3.0 p.m.**, Educational Programme. 5.40, Lithuanian Review. 5.55, Miscellaneous Items. 6.0, Review. 6.10, Miscellaneous Items. 6.15, Talk. 6.30, See **Warsaw.** 7.0, Request Programme. 8.0, Concert of Light Music, relayed from **Warsaw.** 9.5, See **Warsaw.** 11.0 (approx.), Close Down.

ZAGREB

307 metres; 0.75 kW.—**4.0 p.m.**, Concert by the Radio Orchestra. 7.10, Announcements. 7.30, Concert by the Kuhac and Osijek Choral Societies, relayed from the Croatian Music Society's Hall. 9.30, News, Weather and Winter Sports Notes. 9.40, Dance Music by the Bingo Boys, from the Hotel Esplanade. 10.30 (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

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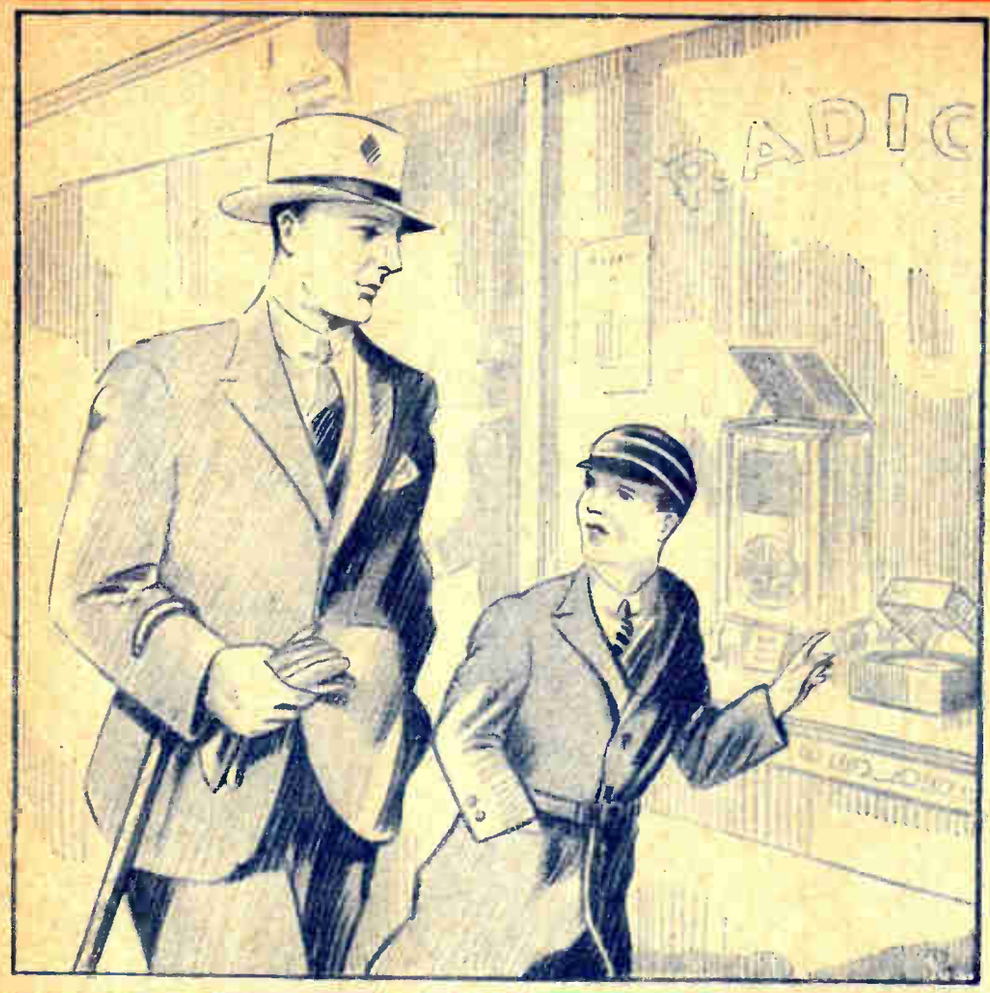

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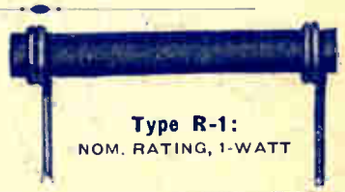

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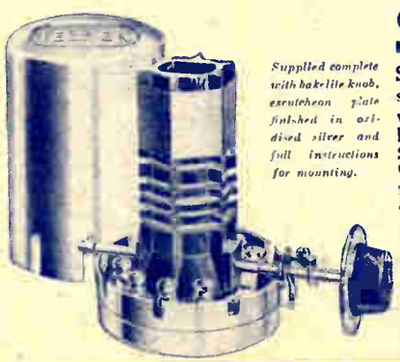

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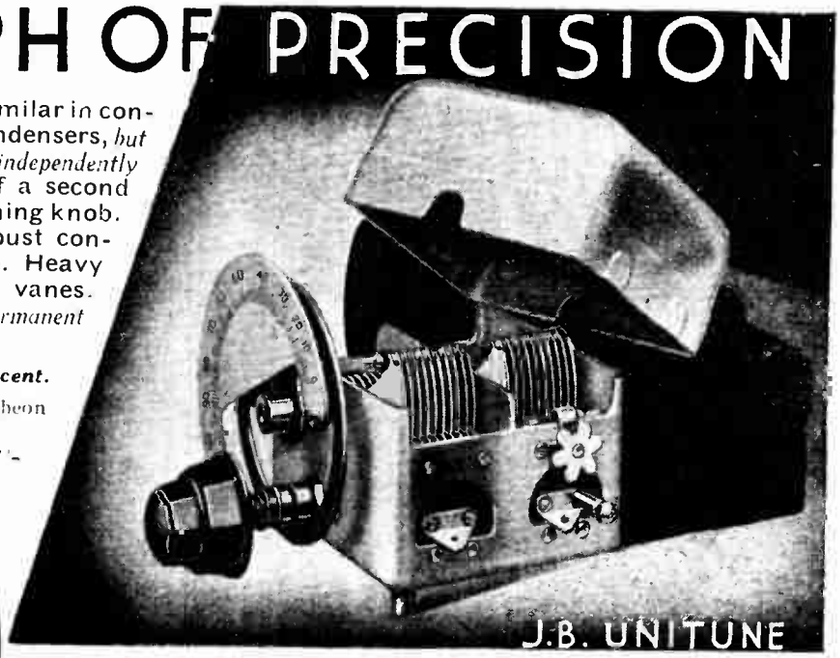

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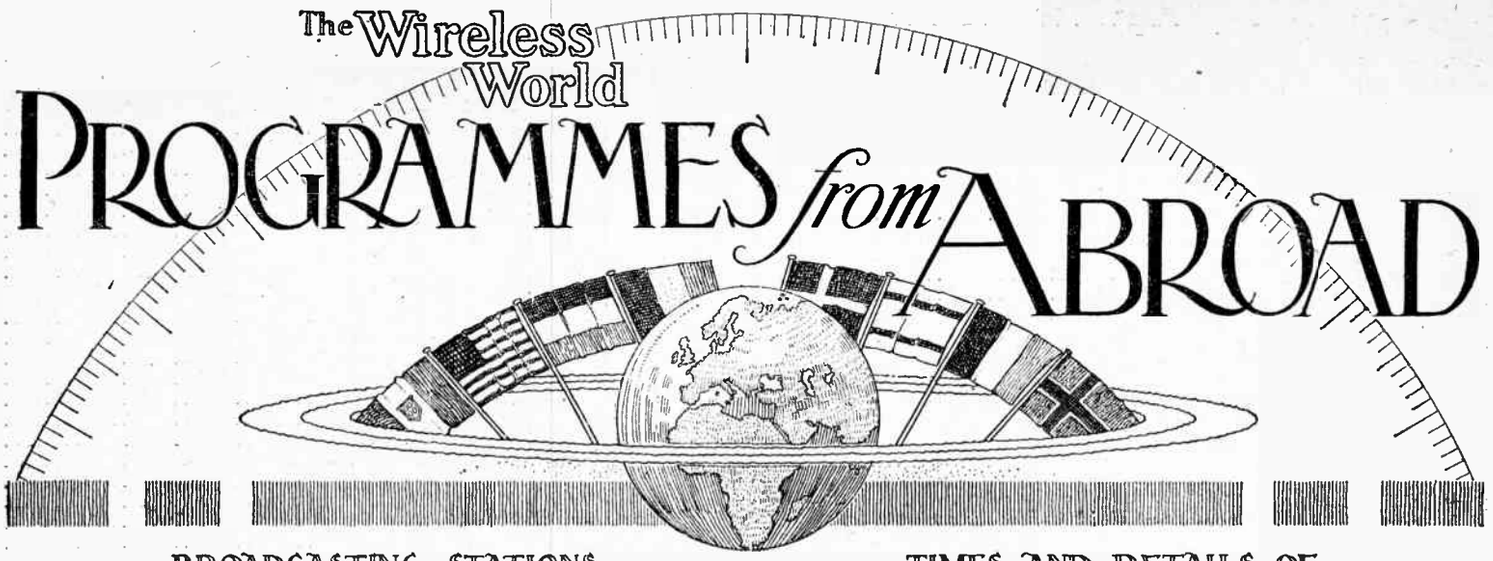

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Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)	
1875	160	8.5	Hilversum (Holland)	
1796	167	40	Lahti (Finland)	
1725	174	75	Radio Paris, C.F.R.	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (*S.-W. Stn. DJA on* 31.38 *m.*)	
1554.4	193	30	Daventry National	
1538	195	7	Ankara (Angora) (Turkey)	
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)	
1446	207.5	13	Eiffel Tower, FL, Paris	
1412	212.5	120	Warsaw I (Poland)	
1380	217.5	100	Novosibirsk, RV6 (Russia)	
1348	222.5	30	Motala (Sweden). (*Relays Stockholm*)	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)	
1275	235	0.5	Tunis-Kasbah (Tunisia)	
1230	244	0.6	Boden (Sweden). (*Relays Stockholm*)	
1200	250	5	Stamboul (Turkey)	
1200	250	21	Reykjavik (Iceland)	
1170	256	25	Tashkent, RV11 (Russia)	
1154	260	7.5	Kalundborg (Denmark). (*Relays Copenhagen*)	
1117	268.5	40	Moscow, Popoff RV58 (Russia)	
1083	277	60	Oslo (Norway)	
1071	280	35	Tiflis, RV7 (Russia)	
1035	290	36	Kiev, RV9 (Russia)	
1000	300	100	Moscow (Russia)	
938	320	20	Kharkov, RV4 (Russia)	
857	350	100	Leningrad (Russia)	
840	357	18.5	Budapest (Hungary)	
825	363.6	50	Sverdlovsk, RV5 (Russia)	
770	389	0.6	Ostersund (Sweden). (*Relays Stockholm*)	
760	395	1.3	Geneva (Switzerland). (*Relays Sottens*)	
720	416.6	20	Moscow, RV2 (Experimenfal) (Russia)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)	
680	441.2	0.6	Lausanne (Switzerland). (*Relays Sottens*)	
574.7	522	0.7	Hamar (Norway). (*Relays Oslo*)	
574.7	522	2.5	Ljubljana (Yugoslavia)	
569	527	0.25	Freiburg-im-Breisgau (Germany). (*Relay Stn.*)	
568.1	528	2	Grenoble (France)	
566	530	0.25	Hanover (Germany). (*Relays Hamburg*)	
563	533	16	Wilno (Poland). (*Relay Station*)	
560	536	0.25	Augsburg (Germany). (*Relays Munich*)	
560	536	1.5	Kaiserslauten (Germany). (*Relays Munich*)	
558.6	537	1	Tampere (Finland). (*Relays Helsinki*)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	
542	554	10	Sundsvall (Sweden). (*Relays Stockholm*)	
537.6	558	3	Palermo (Italy)	
533	563	60	Munich (Germany)	
525	571	15	Riga (Latvia)	
517	580	15	Vienna (Rosenhügel) (Austria)	
509	589	15	Brussels No. 1, Velthem (Belgium). (*In French*)	
500.8	599	20	Florence, 1FI (Italy). (*Relays Turin*)	
495.8	605	1.2	Trondheim (Norway)	
488.6	614	120	Prague, No. 1 (Czechoslovakia)	
480	625	50	North Regional (Manchester)	
472.4	635	60	Langenberg (Germany)	
467	642	0.4	Aalesund (Norway)	
465.8	644	1.5	Lyons la Doua, PTT (France)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (*relays Heilsberg*); Klagenfurt (0.5 kW.) (Austria) (*relays Vienna*); Porsgrund (0.7 kW.) (*relays Oslo*), Tromsö (0.1 kW.), Bodö (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (*relays Stockholm*).	
453.2	662	10	Odessa, RV13 (Russia)	
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Rjukan (0.15 kW), Notodden (0.08 kW.) (Norway) (*relays Oslo*).	
441.2	680	50	Rome, IRO. (*S.-W. Station, 2RO on* 25.4 *m.*)	
435.4	689	55	Stockholm, SASA (Sweden)	
430	698	2.5	Belgrade (Yugoslavia)	
424.3	707	2	Madrid, EAJ7 (Union Radio). (*After* 7.0 *p.m.*)	
424.3	707	100	Moscow, Imini Stalina (Russia)	
419.5	715	1.5	Berlin, No. 1, Witzleben (Germany)	
416.4	720.5	5	Rabat (Morocco)	
413	725	60	Athlone (Irish Free State)	
408.7	734	16	Katowitz (Poland)	
403.8	743	25	Sottens (Radio Suisse Romande) (Switzerland)	
398.9	752	25	Midland Regional	
394.2	761	12	Bucharest (Roumania)	
389.6	770	120	Leipzig (Germany)	
389.6	770	10	Archangel, RV36 (Russia)	
385.1	779	8	Toulouse (Radiophonic du Midi) (France)	
385.1	779	10	Stalino, RV26 (Russia)	
381	788	16	Lwow (Lemburg) (Poland)	
376.4	797	50	Scottish Regional (Falkirk)	
372.2	806	1.5	Hamburg (Germany)	
370.1	810.5	0.8	Radio, LL, Paris	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (*relays Lahti*); Kharkov, RV20 (10 kW.) (Russia).	
365.8	821	0.7	Fredriksstad (Norway). (*Relays Oslo*)	
364.1	824	1	Bergen (Norway)	
363.6	825	13	Algiers (Algeria)	
360.6	832	60	Mühlacker (Stuttgart) (Germany)	
355.9	843	50	London Regional (Brookmans Park)	
352.1	852	7	Graz (Austria). (*Relays Vienna*)	
348.8	860	7.6	Barcelona, EAJ1 (Spain)	
348.8	860	10	Leningrad, RV70 (Russia)	
345.2	869	11.5	Strasbourg, PTT (France)	
341.7	878	35	Brno (Brunn) (Czechoslovakia)	
338.2	887	15	Brussels II, Velthem (Belgium). (*In Flemish*)	
335	896	5	Cadiz (Spain)	
334.4	897	1.9	Poznan (Poland)	
331.5	905	50	Milan (Italy). (*Relays Turin*)	
328.2	914	60	Poste Parisien (France)	
325	923	60	Breslau (Germany)	
321.9	932	10	Göteborg (Sweden). (*Relays Stockholm*)	
318.8	941	0.25	Dresden (Germany). (*Relays Leipzig*)	
318.8	941	1.5	Naples, INA (Italy). (*Relays Rome*)	
315.8	950	1.6	Marseilles, PTT (France)	
312.8	959	1.7	Cracow (Poland)	
312.8	959	10	Genoa, IGE (Italy). (*Relays Turin*)	
309.9	968	1	Cardiff	
307	977	0.7	Radio Vitus (Paris). (*S.-W. Stn. on* 43.75 *m.*)	
304	986	13	Bordeaux Lafayette, PTT (France)	
301.5	995	50	North National (Manchester)	
298.8	1004	11	Tallinn (Esthonia)	
296.1	1013	20	Huizen (Holland). (*After* 4.40 *p.m.*) (*Exchanges wavelengths with Hilversum every three months.*)	
293.5	1022	0.7	Limoges, PTT (France)	
293.5	1022	2.6	Kosice (Czechoslavakia)	
291	1031	10	Viipuri (Viborg) (Finland). (*Relays Helsinki*)	
288.3	1040	50	Scottish National (Falkirk)	
288.3	1040	—	British Relays (Bournemouth, Plymouth)	
286	1049	0.8	Montpellier (France)	
285.1	1052	0.7	Lyons (Radio-Lyon) (France)	

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Metres.	Kc.	kW.	Station.	Tuning Positions.
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
283.6	1058	0.5	Innsbruck (Austria). (*Relays Vienna*)	
282.2	1063	2	Lisbon CT 1AA (Portugal). (*Short-wave Station on 31.25 m.*)	
281.2	1067	0.75	Copenhagen (Denmark)	
278.8	1076	13.5	Bratislava (Czechoslovakia)	
276.5	1085	60	Heilsberg (Germany)	
273.7	1096	7	Turin (Italy)	
271.5	1105	1.3	Rennes, PTT (France)	
269.8	1112	20	Bari (Italy)	
269.8	1112	0.25	Bremen (Germany). (*Relays Hamburg*)	
267.6	1121	1.5	Valencia (Spain)	
265.8	1128.5	1.3	Lille, PTT (France)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
261.5	1147	50	London National (Brookmans Park)	
259.3	1157	17	Frankfurt-a.M. (Germany)	
257.1	1167	10	Hörby (Sweden). (*Relays Stockholm*)	
255.1	1176	0.7	Toulouse, PTT (France)	
253.1	1185	5	Gleiwitz (Germany). (*Relays Breslau*)	
252	1193	1	Barcelona, EA-115 (Assoc. Nat.) (Spain)	
249.6	1202	0.8	Juan-les-Pins, Nice (France)	
247.7	1211	10	Trieste (Italy)	
245.9	1220	0.12	Swansea	
245.9	1220		Berne (0.5 kW.) (Switzerland) (*relays Beromünster*): Eskilstuna (0.2 kW.), Säffle (0.4 kW.) (Sweden) (*relays Stockholm*); Cassel (0.25 kW.) (Germany) (*relays Frankfurt*); Linz (0.5 kW.) (Austria) (*relays Vienna*); Pietarsaari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (*relays Helsinki*); Schaerbeek (0.1 kW.) (Belgium)	
244.1	1229	0.5	Basle (Switzerland). (*Relays Beromünster*)	
242.3	1238	1	Belfast (N. Ireland)	
240.6	1247	0.5	Stavanger (Norway)	
238.9	1256	2	Nürnberg (Germany). (*Relays Munich*)	
238	1260	1	Nimes (France)	
237.2	1265	3	Bordeaux, Sud-Ouest (France)	
235.5	1274	0.5	Kristiansand (Norway)	
235	1283	1.65	Lodz (Poland). (*Relay Station*)	
232.2	1292	0.25	Kiel (Germany). (*Relays Hamburg*)	
230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhätten).	
229	1310	0.5	Umea (Sweden)	
227.4	1319	0.5	Flensburg (Germany). (*Relays Hamburg*)	
224.4	1337	1	Cork (Irish Free State)	
223	1345	10	Fécamp, Radio-Normandie (France)	
222.9	1346	0.15	Hüdiksvall (Sweden)	
219.9	1365	1.5	Béziers (France)	
218.5	1373	0.2	Plymouth	
218.5	1373	0.5	Salzburg (Austria). (*Relays Vienna*)	
217	1382	0.5	Königsburg (East Prussia) (Germany)	
217	1382	0.25	Karlstad (Sweden)	
215.6	1391	0.1	Brussels, Radio-Chatelineau (Belgium)	
215.6	1391	0.2	Halmstad (Sweden)	
214.3	1400	1	Aberdeen	
214.3	1400	10	Warsaw, No. 2 (Poland)	
211.3	1420	1	Newcastle	
209	1430	0.8	Magyarovar and Miskolcz (Hungary)	
207	1450	0.15	Boras (Sweden)	
206	1460	0.2	Ornsköldsvik (Sweden)	
204.1	1470	0.2	Gävle (Sweden)	
202.7	1480	0.25	Kristineham (Sweden)	
201.3	1490	0.25	Hälsingborg (Sweden)	
195	1530	0.2	Karlskrona (Sweden)	

PRINCIPAL SHORT-WAVE STATIONS.

(N.B.—Times of Transmission, given in parentheses, are approximate only and represent G.M.T.)

Metres.	Kc.	Call Sign.	Station.	Tuning Positions.
80.0	3,750	2RO	Rome	
70.2	4,273	RW15	Khabarovsk (Russia). (*Daily* 09.00–12.00)	
63.0	4,760	CT3AR	Funchal (Madeira). (*Wed.* 20.30, *Sun.* 14.30)	
62.56	4,795	VE9BY	London, Ont. (Canada). (*Sun.* 06.00)	
62.5	4,800	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 24.00)	
58.3	5,146	PMY	Bandoeng (Java). (*Daily* 12.20 *and* 07.00.)	
58.0	5,172	OK1MPT	Prague (Czechoslovakia). (*Tues. and Fri.* 19.30.)	
54.52	5,502	W2XBH	Brooklyn, N.Y. (U.S.A.). (*Relays WCGU*)	
52.7	5,690	FIU1	Tananarive, P.T.T. (Madagascar)	
52.5	5,714	HCJB	Quito (Ecuador). (*Daily* 12.30)	
51.22	5,857	XDA	Chapultepec (Mexico)	
50.6	5,930	HKO	Medellin (Colombia)	
50.26	5,970	HVJ	Vatican State, Rome. (*Daily* 19.00)	
50.0	6,000	ZL3ZC	Christchurch (New Zealand). (*Wed.* 03.00, *Sat.* 07.30.)	
50.0	6,000	—	Bucharest (Roumania)	
50.0	6,000	RW59	Moscow	
50.0	6,000	EAR25	Barcelona, Radio Club (Spain). (*Sat.* 20.00.)	
49.96	6,005	VE9DR	Drummondville (Canada). (*Relays CFCF.* 01.00-05.00.)	
49.96	6,005	HRB	Tegucigalpa (Honduras). (*Daily ex. Sun.* 00.00–05.00.)	
49.83	6,020	W9XF	Chicago, Ill. (U.S.A.). (*Relays WENR*)	
49.8	6,023	XEW	Mexico City (Mexico). (*Daily* 01.00)	
49.67	6,042	W2XAL	Coytesville, N.J. (U.S.A.). (*Relays WRNY.*)	
49.59	6,050	VE9HX	Halifax (Nova Scotia). (*Relays CHNS*)	
49.58	6,050	GSA	Empire Broadcasting, Zones 4-5	
49.5	6,060	VQ7LO	Nairobi (Kenya Colony). (*Daily* 16.30)	
49.5	6,060	W8XAL	Mason, Ohio (U.S.A.). (*Relays WLW*)	
49.5	6,060	W3XAU	Philadelphia, Pa. (U.S.A.). (*Relays WCAU.*)	
49.43	6,069	VE9CS	Vancouver, B.C. (Canada)	
49.4	6,072	UOR2	Vienna. (*Tues.* 13.00, *Thurs.* 15.00, *Sat.* 23.00.)	
49.34	6,080	W2XCX	Kearny, N.J. (U.S.A.). (*Relays WOR*)	
49.34	6,080	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
49.22	6,095	VE9GW	Bowmanville, Ont. (Canada). (*Daily* 20.00)	
49.2	6,098	ZTJ	Johannesburg (S. Africa). (*Weekdays* 09.00, 14.00 [*Sat.* 14.30] *and* 17.00, *Sun.* 13.00 *and* 17.30.)	
49.18	6,100	W3XAL	Bound Brook, N.Y. (*Relays WJZ*)	
49.1	6,110	VUC	Calcutta, India. (*Daily* 13.00)	
49.02	6,120	W2XE	Long Island, N.Y. (U.S.A.). (*Relays WABC.*)	
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
48.8	6,147	VE9CL	Winnipeg (Canada). (*Daily ex. Sun.* 00.30)	
48.65	6,167	XIF	Mexico City (Mexico)	
48.35	6,205	HKC	Bogota (Colombia). (*Daily* 15.00)	
48.2	6,220	2RO	Rome (Italy)	
48.05	6,243	HKD	Barranquilla (Colombia). (*Weekdays* 23.45)	
48.0	6,250	CN8MC	Casablanca (Morocco). (*Relays Rabat*)	
47.0	6,382	HCJDR	Quito, Ecuador. (*Daily* 01.00)	
46.69	6,425	W3XL	Bound Brook, N.J. (U.S.A.). (*Relays WJZ irregular.*)	
46.67	6,426	VE9BY	London, Ont. (Canada). (*Sat.* 01.00 *Sun.* 02.00.)	
45.38	6,611	REN	Moscow (*Relays Trade Union Stn.*)	
45.0	6,667	FM8KR	Constantine (Algeria). (*Mon. and Fri.* 23.00.)	
45.0	6,667	TGW	Guatemala City (Central America). (*Daily* 03.00.)	
43.75	6,860	—	Radio Vitus, Paris. (*Daily* 20.30)	
43.0	6,970	EAR110	Madrid. (*Tues. and Sat.* 22.30)	
41.7	7,195	VS1AB	Singapore (Malay States). (*Sun. and Wed.* 15.30.)	
41.6	7,211	EAR53	Teneriffe (Radio Club) (Canary Islands)	
41.5	7,220	HB9D	Zurich (Radio Club) (Switzerland). (*1st and 3rd Sun.*)	
41.0	7,320	HSP2	Bangkok (Siam). (*Mon.* 14.00)	
40.3	7,443	HBQ	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00-22.45)	
39.7	7,556	HKF	Bogota (Colombia). (*Westinghouse Labs.*)	
39.4	7,612	X26A	Nuevo Laredo (Mexico). (*Thurs.* 16.00)	
38.7	7,797	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.45.)	
36.92	8,125	PLW	Bandoeng (Java). (*Daily* 10.00–14.00)	
34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 23.00)	
34.68	8,650	VE9BY	London, Ont. (Canada). (*Mon.* 21.00)	
33.50	8,928	TGX	Guatemala City (S. America)	
32.26	9,300	—	Rabat (Morocco). (*Sun.* 21.00)	
31.58	9,500	PRBA	Rio de Janeiro (Brazil). (*Daily* 21.30)	
31.55	9,510	VK3ME	Melbourne (Australia). (*Wed. and Sat.* 10.00.)	
31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5	
31.51	9,520	OXY	Skamlebaek (Denmark). (*Relays Copenhagen.*)	
31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.). (*Relays WGY*)	
31.38	9,560	DJA	Zeesen (Germany). (*Daily* 13.00)	
31.35	9,570	SRI	Posen (Poland). (*Tues. and Thurs.* 17.30)	
31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.). (*Relays WBZ.*)	
31.3	9,582	W3XAU	Philadelphia, Pa. (U.S.A.). (*Daily ex. Thurs. and Fri.* 21.00.)	
31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00-22.45)	
31.29	9,585	GSC	Empire Broadcasting, Zone 3	
31.28	9,590	VK2ME	Sydney (Australia). (*Sun.* 10.00)	
31.25	9,598	CT1AA	Lisbon (Portugal). (*Tues. and Fri.* 22.00–24.00)	
31.10	9,640	HS2PJ	Bangkok (Siam). (*Mon.* 02.00–05.00)	
30.43	9,869	EAQ	Aranjuez (Spain). (*Daily* 23.30, *Sat.* 18.00)	
30.0	10,000	—	Belgrade (Yugoslavia). (*Mon.* 19.00)	
29.3	10,228	T14NRH	Heredia (Costa Rica). (*Daily* 22.00 *and* 02.00.)	
28.98	10,350	LSX	Buenos Aires (Argentina). (*Daily* 20.30)	
26.83	11,180	CT3AQ	Funchal (Madeira). (*Tues. and Thurs.* 10.30–12.30.)	
25.63	11,700	FYA	Pontoise (France). (*Colonial Stn. E-W, daily* 20.00.)	
25.6	11,720	VE9JR	Winnipeg (Canada). (*Daily ex. Sat. and Sun.* 17.45)	
25.53	11,750	GSD	Empire Broadcasting, Zones 1 & 4	
25.5	11,760	XDA	Chapultepec (Mexico). (*Daily* 20.00)	
25.4	11,810	VE9GW	Bowmanville (Canada). (*Daily* 18.00)	
25.4	11,810	2RO	Prato Smeraldo, Rome. (16.00 *and* 19.30)	
25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
25.28	11,865	GSE	Empire Broadcasting, Zone 2	
25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
25.2	11,905	FYA	Pontoise (France). (*Colonial Stn. N-S*)	
23.38	12,830	—	Rabat (Morocco). (*Sun.* 11.30)	
20.5	14,630	XDA	Chapultepec (Mexico). (*Daily* 19.30)	
19.9	15,075	T14NRH	Heredia (Costa Rica). (*Sat., Sun., Mon.* 16.00 *and* 21.00)	
19.84	15,120	HVJ	Vatican State, Rome. (*Daily* 10.00)	
19.81	15,140	GSF	Empire Broadcasting, Zone 5	
19.73	15,200	DJB	Zeesen (Germany). (*Daily* 13.00–17.00)	
19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.) (*Relays KDKA.*)	
19.68	15,244	FYA	Pontoise (France). (*Colonial Stn. E-W*)	
19.56	15,340	W2XAD	South Schenectady, N.Y. (U.S.A.) (*Daily* 18.00.)	
16.9	17,750	HSP	Bangkok (Siam). (*Sun. and Tues.* 21.00)	
16.88	17,770	GSG	Empire Broadcasting, Zone 2	
16.87	17,780	W3XAL	Bound Brook, N.J. (*Weekdays* 13.00)	
16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
14.47	20,730	LSY	Buenos Aires (Argentina). (*Sun.* 21.00)	
13.97	21,470	GSH	Empire Broadcasting, Zone 3 (*Daylight working*)	
13.92	21,540	W8XK	East Pittsburg (*Relays KDKA.*)	

FOREIGN SUNDAY PROGRAMMES

MARCH THE TWELFTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Service from St. Martin's-in-the-Fields. Instrumental and vocal concert.
LONDON REGIONAL	"Macbeth" (Shakespeare). Sunday orchestral concert.
MIDLAND REGIONAL	Military Band concert.
WEST REGIONAL	Carolare No. 10. Orchestral concert.

ABROAD

BERLIN	11 a.m. National Day of Remembrance.
BRUSSELS (No. 2)	8 p.m. Musical play: "The Vagabond King" (Friml), from the Royal Flemish Opera House, Antwerp.
BUCHAREST	7 p.m. Opera: "Samson and Delilah" (Saint-Saëns).
LANGENBERG	6.25 p.m. Programme for the National Day of Mourning.
PALERMO	7.45 p.m. Symphony concert, conducted by A. La R. Parodi.
ROME, TURIN, MILAN and TRIESTE	4 p.m. Symphony concert from the Augusteo, Rome, conducted by V. de Sabata.
STRASBOURG	4.30 p.m. Pasdeloup symphony concert, from Paris.
STUTTGART	8.5 p.m. Mahler's Ninth Symphony, from Frankfurt.
VIENNA	6.40 p.m. Chopin pianoforte recital, by J. Isserlis.
WARSAW	7 p.m. Opera music by the Station Orchestra.

ATHLONE

413 metres; 60 kW.; and **CORK, 224.4 metres.**—**8.30 p.m.,** Time Signal. **8.31,** Concert by the Station Orchestra. **8.45,** Contralto Solos by Betty Byrne. **8.55,** The Station Orchestra. **9.15,** Contralto Solos by Betty Byrne. **9.25,** A Play by the Studio Players. **10.25,** The Station Orchestra. **11.0,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**11.0 a.m.,** Chimes from the Cathedral and Weather Forecast. **1.0 p.m.,** Light Music on Gramophone Records. **1.30** (in an interval), Theatre Notes. **2.0,** Cinema Review and Sextet Concert. **3.0,** Programme for Hospitals and Other Benevolent Institutions. **4.0 to 5.30,** Interval. **5.30,** Agricultural Talk in Catalan and Concert by the Station Orchestra. **6.30,** An Opera relayed from the Gran Teatro del Liceo. **9.0,** A Musical Comedy on Gramophone Records. **10.45,** Chess Lesson. **11.0** (approx.), Close Down.

BARI

269.8 metres; 20 kW.—**9.45 a.m.,** Agricultural Notes. **10.5,** Sacred Music. **10.30,** Bible Reading. **12 Noon,** Giornale Radio. **12.10 to 1.15 p.m.,** Popular Music on Gramophone Records. In the intervals at **12.55,** Weather, and **1.0,** Time. **4.30 to 5.30,** Variety Music on Gramophone Records. **7.0,** Sports Notes and Giornale Radio. **7.30,** Time and Announcements. **7.35** (approx.), Variety Concert. In the interval, News and Announcements. **9.30,** Concert relayed from the Grand Hotel Moderno. **9.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—**3.0 p.m.,** Orchestral Concert: Overture, Queen for a Day (Adam); Spanish Fantasia (Demersseman); Selection from Faust (Gounod); Scènes pittoresques (Massenet); Angelus (Micheli); Russian Mazurka, La czarine (Ganne). **5.55,** Time and Programme Announcements. **6.0,** Popular Music on Gramophone Records. **6.20,** Recital of Arias from Opera. **7.0,** Radio Play. **7.30,** Concert by the Royal Guards Wind Instrument Orchestra. **9.0,** News, followed by Dance Music.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 30 kW.—**10.30 a.m.,** See **Leipzig. 11.0,** National Day of Remembrance—Music by the Kosleck Wind Instrument Association, conducted by Albert Rossow, the Frei Weg Drum Corps, conducted by Richard Zellmer, and the Charlottenburg Teachers' Choral Society, conducted by Theodor Jakobi: Army March (Julius Möllendorf); Folk Song, O Deutschland hoch in Ehren. Ave verum corpus (Albert Rossow); Folk Song, Reiters Morgenlied; Address by Dr. Schaack-Konstanz; Drum Roll and First Verse of the Song, Ich hatt' einen Kameraden; Tattoo and Prayer, First Verse of Deutschland über alles. **11.55,** Nauen Time Signal. **12 Noon,** See **Heilsberg. 1.0 p.m.,** Talk for Parents: Our Orphans. **1.30,** Programme for Children. **2.0,** Variety Music on Gramophone Records. **2.30,** Richard Euringer reads from his own Works. **3.0,** Chamber Music. **3.30,** See **Langenberg. 4.30,** Chamber Music—Eighteenth Century Songs to the Harpsichord. **5.15,** Talk: Great Germans and their Trust in God. **5.45,** Talk: The Masurian Winter Campaign, 1915. **6.5.** Brahms Pianoforte Music—Recital by Margarethe Ansorge: Rhapsody in B Minor; Intermezzo in E Flat; Rhapsody in G Minor. **6.30,** Letters of Mothers to their Sons, and from Sons to their Mothers. **7.0,** See **Breslau. 8.0,** Concert from **Leipzig. 9.0,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Programme from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**10.20 a.m.,** See **Leipzig. 11.0,** See **Berlin (Königs Wusterhausen). 12 Noon,** See **Hamburg. 1.0 p.m.,** A Dialogue: Heredity and Education. **1.30 to 2.0,** Letters of Students who Fell in the Great War. **2.30,** Gramophone Concert of Classical Music. **3.20,** Radio Report of Falconry. **3.40,** Concert by the Berlin Wireless Orchestra, conducted by Bruno Seidler-Winkler: Totenfeier (Oskar Wappenschmitt); Suite (Siegried) Kuhn); Symphonic Poem, Les Préludes (Liszt). **4.30,** Address: In Memory of the Dead. **4.50,** The Heritage—Voices between Life and Death. **6.0,** Concert of Old Pomeranian Music relayed from the Municipal Theatre, Greifswald. **6.50,** Sports Notes. **6.55,** Announcement. **7.0,** Requiem for Contralto, Mixed Choir and Orchestra (Reger), relayed from the Friedenskirche, Potsdam. **7.25,** The First Day—A Wireless Poem (Hans Rehberg, Music by Hans Kummeier). **8.55,** Weather, News and Sports Notes. **9.5** (approx.), Concerto in C for Pianoforte and Orchestra, Op. 15 (Beethoven), by the Berlin Wireless Orchestra, conducted by Eugen Jochum. **10.0,** Choral and Orchestral Concert of Sacred Music, relayed from the Church of the Good Shepherd, Friedenau. In the intervals: Municipal Election Results. **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

279 metres; 14 kW.—**10.0 a.m.,** Sonata in A flat, Op. 1 (Suchon), for Violin and Pianoforte. **10.30,** See **Prague. 11.5,** See **Moravská-Ostrava. 12.30 p.m.,** See **Prague. 1.0,** Agricultural Talk. **1.15 to 1.20,** Hydrographical Report. **2.30,** Programme relayed from **Zvolen. 5.10,** Concert of Light Music relayed from the Museum Café. **6.0,** Programme relayed from **Zvolen. 8.0,** See **Prague. 9.20,** Cigány Music and Songs relayed from the Astoria Café. **10.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW; and **GLEIWITZ, 253 metres.**—**9.0 a.m.,** Protestant Service. **10.0,** Reading of Hölderlin's Poems. **10.30,** See **Leipzig. 11.0,** See **Berlin (Königs Wusterhausen). 12 Noon,** See **Heilsberg. 1.0 p.m.,** Announcements. **1.10,** Samoan Legends. **1.35,** Talk: The Progress Made in the Care of War Cemeteries Abroad during the last few Years. **2.0,** Talk: Mankind and the Earth. **3.0,** Programme for Children. **3.30,** String Quartet in C Sharp Minor, Op. 131 (Beethoven). **4.20,** Reading of Letters sent from Deaconesses in the Missionary Field. **4.50,** Concert by the German Choir and the Silesian Symphony Orchestra, conducted by Carl Schmidt-Belden: Concerto grosso in D Minor (Handel); Funeral March from the Symphony No. 3—the Eroica (Beethoven); Nänie, Op. 82 for Choir and Orchestra (Brahms). **5.50,** Talk: German Stage Music and the Silesian Frontier Problem. **6.20,** Weather for Farmers. **6.25,** Beethoven Pianoforte Recital by Georg Dohrn: Rondo in G, Op. 51, No. 2; Sonata in E Flat, Op. 81a. **7.0,** Literary Programme for the National Day of Mourning. **8.0,** Concert from **Leipzig. 9.0,** Time, Weather, News, Sports Notes and Programme Announcements. **9.30** (approx.), Close Down.

BRNO

342 metres; 35 kW.—**3.0 p.m.,** Variety Programme. **4.30,** Two Sketches. **5.0 to 5.45,** German Transmission: 500 Years in Music—Programme by the Station Orchestra and Choir with Introductory Talk. **6.0,** See **Moravská-Ostrava. 7.0,** See **Prague. 9.20,** See **Bratislava. 10.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—**10.0 a.m.,** Gramophone Concert of Light Music. **11.0,** Concert by the Small Station Orchestra, conducted by Leemans: Scenes napolitaines (Massenet); Liebestraum (Liszt); Bolero for Pianoforte (Chopin); Selection from Faust (Gounod); Serenade d'amour (Lohr); Pasodoble, Old Spain (Donon); Three Dances (German). **12 Noon,** Concert relayed from the Grand Hotel, Antwerp. **12.30 p.m.,** Gramophone Concert of Popular Music. **1.0,** Le Journal Parlé. **1.10,** Concert by Mickey's Club Jazz Attraction. **1.30,** Narcisse the Hairdresser—Sketch (Ray). **1.40,** Concert (contd.). **5.0,** Dance Music relayed from the Saint Saveur Palais de Danses. In the interval at **5.30** (approx.), Football Results. **6.15,** Ernest Angreves Song Recital by Mme. Philippart: Offrande; Fantaisie; Je voudrais te la dire; Dans un Parfum de Roses blanches; Ma Soeur la Pluie. **6.30,** Programme for Children. **7.0,** Organ Recital relayed from the Carmelite Church: Fantasia in G Minor (Bach); Air (Grieg); Allegro con fuoco (De Boeck). **7.15,** Religious Address. **7.30,** Music Review. **8.0,** Concert by the Radio Orchestra, conducted by Franz Andre: Jazz in the Zoo (Basilewsky); Selection from Cydalise et le Chèvrepied (Pierné); Popular Songs; Marche joyeuse (Chabrier); A Sung Ballet, Salade (Milhaud). **8.45** (in an interval), Talk on the Belgian Author, Auguste Vermeylen, with Readings from his Works. **10.0,** Le Journal Parlé. **10.10,** Gramophone Concert of Popular Music. **11.0,** Concert by the Penguin Club. **12 Midnight** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW. Programme in Flemish.—**10.0 a.m.,** Concert by the Small Station Orchestra, conducted by P. Leemans. **11.0,** Gramophone Concert: Overture, Benvenuto Cellini (Berlioz); Aux étoiles (Duparc); Le Camp de Wallenstein (d'Indy); Quartet in E Flat, Op. 74 (Beethoven). **12 Noon,** Concert by Mickey's Club Jazz Attraction. **1.0 p.m.,** Le Journal Parlé. **1.10 to 5.0,** Concert by André Felleman, from the Grand Hotel, Antwerp. **5.0,** Concert of New Sound Film Music, Jazz, and Popular Potpourris by the Radio Orchestra, conducted by Franz André. In the interval at **5.15** (approx.), Sports Results. **6.0,** Light Music on Gramophone Records. **6.15,** Recitations. **6.30,** Gramophone Records: Overture, Figaro (Mozart); Selection from Daphnis et Chloé (Ravel). **6.50,** Song Recital by Mme. Marica Nicolopoulo: Songs (Mendelssohn): (a) Das erste Veilchen, (b) Auf Flügeln des Gesanges, (c) Bei der Wiege, (d) Jagdlied; Songs (Brahms): (a) Sapphic Ode, (b) Wiegenlied, (c) Der Schmied; An die Musik (Schubert); Ständchen (R. Strauss); Bird Songs at Eventide (E. Coates). **7.15,** Religious Talk. **7.30,** Music Review. **8.0,** The Vagabond King—Musical Play (Friml), relayed from the Royal Flemish Opera House, Antwerp. In the intervals, Recitations and Le Journal Parlé. **11.20,** Light Music on Gramophone Records. **12 Midnight,** Close Down.

BUCHAREST

394 metres; 12 kW.—**9.15 a.m.,** Programme for Children. **9.30,** Bible Reading. **9.45,** Choral Concert of Sacred Music. **10.0,** Concert by the Burada Orchestra. **1.0 p.m.,** Light Music on Gramophone Records. **1.45,** News and Time Signal. **2.0,** Light Music (contd.). **3.0,** Programme for Peasants. **4.0,** Concert of Light Music and Romanian Music by the Marco Orchestra. **5.0,** News and Time Signal. **5.10,** Talk. **5.25,** Concert (contd.). **6.0,** Talk on Romania: Her Co-operative Organisations. **6.40,** Popular Music on Gramophone Records. **7.0,** Samson and Delilah—Opera in Three Acts (Saint-Saens). In the intervals, News.

BUDAPEST

550 metres; 18.5 kW. Also relayed on **840 metres** from **6.45 to 11.0 p.m.**—**8.0 a.m.,** News and Beauty Hints. **9.0,** Sacred Music and Address from the University Church. **10.15,** Evangelical Service, followed by Time, Weather, and Tide Report, and Concert by the Opera House Orchestra, conducted by Ernst Dohnanyi: Overture, The Magic Flute (Mozart); Symphony No. 12 (Haydn); Möllinger Tänze (Beethoven); Suite (R. Strauss); Moments musicals (Schubert-Dohnanyi). **1.0 p.m.,** Gramophone Records of Popular Music. **2.0,** Agricultural Talk. **2.45,** Two Talks for Schools. **3.30,** News and Concert by the Jenö Pertis Cigány Band. **4.30,** Humorous Talk. **5.0,** Concert by the Budapest Concert Orchestra, conducted by F. Friedl. **6.0,** Reading (Franz Mora). **6.30,** Sports and Racing Results. **6.45,** An Operetta (Franz Rajna and Karl Czobor). **8.45,** Time and Sports Notes. **9.0** (approx.), Concert by the Georg Guttenberg Jazz Band and the Julius Horváth Cigány Band with Hungarian Folk Songs by Paul Kalmár, relayed from the Café Ostend. **11.0** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW., and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Time Signal and Chimes from the Town Hall. **11.1,** Concert by Morgen Hansen's Instrumental Ensemble. **12 Noon,** Talk in English: The Grand Tour of England—XIV. **12.20 p.m.,** Talk in German: Hermann Löns. **12.40,** Talk in French: Shades of a glorious Past. **1.0,** Programme to be announced. **2.0,** Programme for Children. **2.25,** Sixteenth Popular Concert by the Radio Orchestra. **4.0** (also relayed on **Skamleback, 31.51 metres**), Divine Service, relayed from the Castle Church, Christiansborg. **5.20,** Talk: Peasants in Twentieth Century Poetry. **5.50,** Weather. **6.0,** News. **6.15,** Time Signal. **6.16,** Sports Notes. **6.30,** Talk: Handwork Instruction in other Lands. **7.0,** Time Signal from the Town Hall. **7.1,** Danish String Music by the Radio String Orchestra, conducted by Emil Reesen: Novelletten (Gade); Suite in A Minor, Op. 1 (Nielsen). **7.35,** A Radio Play (Mette Reetz). **8.10,** Recital by Famous Singers of the Metropolitan Opera House, New York, on Gramophone Records. **8.30,** Music for Oboe and Harpsichord by Svend Felumb and Folmer Jensen: Sonata in G minor for Oboe and Harpsichord (Telemann); Largo (Loeillet); Minuet (Rameau). **8.50,** Reading. **9.5,** News. **9.15,** Orchestral Concert, conducted by Emil Reesen. **10.0,** Dance Music by Teddy Petersen and his Orchestra, relayed from the Wivex Restaurant. **11.0,** Time Signal and Chimes from the Town Hall.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**12.0 Noon,** Radio Gazette and News Bulletin. **12.30 p.m.,** Variety Concert. **4.0 to 8.0,** Programme in English by the I.B.C., C. Danvers Walker, R. Chene, B. MacNabb announcing. **4.0,** Programme for Children. **4.30,** Children's Club Concert. **5.0,** International Broadcasting Club Concert for Sheffield Listeners: Overture, William Tell (Rossini); Victoria March; Special Message from the Lord Mayor of Sheffield; Selection from Maritana (Wallace); Song by Scout Teddy James: Ave Maria; Violin Solo: Caprice Viennois (Kreisler); Song: The English Rose; Sheffield Orpheus Male Voice Choir: There is a Tavern in the Town; Song: The Lass with a delicate Air; Orchestra: Waltz from Bitter Sweet (Coward); Song: The Londonderry Air; Choir: The Lincolnshire Poacher; Military March (Schubert); Song: The Two Grenadiers (Schumann); March of the King's Own Yorkshire Regiment. **6.0,** Orchestral Concert with Songs: Vienna, City of my Dreams (arr. Reeve); Drink, Drink,

Brothers, Drink (Bendix); The Laird o' Cockpen (Parry); Selection from The Beggar's Opera (Gay); Good Friends (Heymann); The Pretty Creature (Lane Wilson); Ideale (Tosti). **6.30,** Request Half-Hour. **7.0 p.m.,** Military Band Concert: March, For Valour; Aldershot Command Tattoo; Selection from The Belle of New York (Kerker); Returning Home; Riders of the Flag. **7.30,** Orchestral and Choral Concert: Softly awakes my Heart, from Samson and Delilah (Saint-Saëns); Choir: (a) Pilgrim's Chorus from Tannhäuser (Wagner), (b) The Anvil Chorus from Il Trovatore (Verdi); Meditation, from Thais (Massenet); Choir: (a) Grand March from Tannhäuser (Wagner), (b) Soldiers' Chorus from Faust (Gounod), (c) The Swan Chorus from Lohengrin (Wagner), Prelude to Carmen (Bizet). **8.0,** Concert of Opera and Operetta Music. **9.0,** Concert for Dan Flynn. **9.30,** Light Classical Half-Hour: Overture, Pique Dame (Suppé); Song: Walter's Song, from The Mastersingers (Wagner); 'Cello Solo: The Broken Melody (van Biene); Air from Sylvia (Delibes); Song: Flower Song from Carmen (Bizet); Quartet: Cherry Ripe (Traditional); Waltz, The Blue Danube (Strauss). **10.0,** Vocal Concert: Quartet: Cherry Ripe; I am a Friar of Orders Grey (German); Rolling down to Rio (German); Quartet: Molly on the Shore (Grainger); The Drum Major (Newton); The Yeomen of England, from Merrie England (German); My Sword and I (Byng); Quartet: Siciliana (Byng). **10.30,** Popular Concert: Selection from The Maid of the Mountains (Fraser Simpson); Butterflies in the Rain; Wheezy Anna; Standing on the Corner; A Boy and Girl were dancing; Jack in the Box; Please handle with Care; I can't believe it's true. **11.0,** Organ Recital: Selection from A Life on the Ocean (Binding); A Perfect Day (Jacobs-Bond); Lola (Arndt); Indian Love Call, from Rose Marie (Friml); American Patrol; Selection from Cavalleria rusticana (Mascagni); Glow Worm Idyll (Lincke); Turkish Patrol (Michaelis). **11.30,** Songs and Pianoforte Solos: Songs: (a) Shoo the Hoodoo away (Snyder), (b) Going Home (Adinsell), (c) There's happiness over the Hill (Sullivan); Pianoforte Solo: Selection from The Big Pond; Songs: (a) Around the Corner (Kassel), (b) Song of the Flame (Gershwin), (c) The Empire Parade (Mayerl); Pianoforte Solo: Hot Scotch (Peterson). **12 Midnight,** International Broadcasting Club Concert for Sheffield Listeners: Overture, William Tell (Rossini); Victoria March; Special Message from the Lord Mayor of Sheffield; Selection from Maritana (Wallace); Song: Ave Maria; Violin Solo: Caprice viennois (Kreisler); Song: The English Rose; Choir: There is a Tavern in the Town; Song: The Lass with a Delicate Air; Orchestra: Waltz from Bitter Sweet (Coward); Song: The Londonderry Air; Choir: The Lincolnshire Poacher; Military March (Schubert); Song: The Two Grenadiers (Schumann); March of the King's Own Yorkshire Regiment. **1.0,** Variety Music: The Waltz that made you mine; We're living at the Cloisters; Running up and down our Street; Medley of Welsh Airs; The Day I went to Wembley for the Cup Tie; Unlucky Girl; The Last Trail; Medley of English Airs. **1.30,** Vocal Duets; Happy Feet; You fell in Love with the Moonlight; When you're smiling; Harmonica Duet; Songs I heard at Mother's Knee; In a Kitchenette; Watching my Dreams go by; Harmonica Duet: Handsome Gigolo. **2.0,** Let's all sing like the Birdies Sing; On the air; On a Dreamy Afternoon; My Romance; You'll always be the same Sweetheart; Pu-leeze, Mr. Hemmingway; How deep is the Ocean?; Till to-morrow; Moonlight on the River; Just because you're you; Three's a Crowd; Sheltered by the Stars; Sweethearts for ever; You've got me in the Palm of your Hand; Pal of my Dreams. **2.57,** I.B.C. Good-night Melody. **3.0** (approx), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW., and **CASSEL, 245.9 metres,** and **TRIER, 259.3 metres.**—**10.30 a.m.,** See **Leipzig. 11.0,** See **Berlin (Königs-Wusterhausen). 12.0 Noon,** The Third Symphony in F, Op. 90 (Brahms), and Scenes from The Twilight of the Gods (Wagner), on Gramophone Records. **1.30 p.m.,** Agricultural Hints. **1.40,** Agricultural Talks. **2.30,** Programme for Children. **3.30,** Concert by the Wiesbaden Municipal Orchestra, relayed from the Kurhaus, Wiesbaden. **5.0,** Talk: The Graves of German Heroes the World over. **5.25,** Extracts from the German Requiem (Brahms), on Gramophone Records. **5.50,** History Talk: The Battle of Riade, March 15th, 933. **6.15,** Sports Notes. **6.20 to 8.5,** See **Stuttgart. 8.5,** The Tenth Sunday Concert of the Frankfurt Orchestral Society. The Ninth Symphony (Mahler), by the Station Orchestra, conducted by Hans Rosbaud. **9.25,** Time, News, Weather and Sports Notes. **9.45,** Municipal Election Results, with Gramophone Music in the intervals. **1.0 a.m. (Monday),** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

MARCH 12th SUNDAY *continued*

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 297.4 metres; Hanover, 566 metres,** and **Kiel, 232.2 metres.**—**10.0 a.m.** (from **Bremen**). Wagner Memorial Festival, arranged by the Bremen Branch of the Bayreuth Society. **11.0 a.m.,** See **Berlin (Witzleben). 11.55,** Time and Weather. **12 Noon** (from **Flensburg**), Concert, conducted by Kurt Barth, relayed from the Deutsches Haus: Leonora Overture No. 2 (Beethoven); Extracts from the Third Suite in D (Bach); Nachklänge an Ossian (Gade); Maurerische Trauermusik in C Minor (Mozart); Overture, Alceste (Gluck). **1.0 p.m.,** Programme for Children. **1.45,** Reading of a Modern Fairy Tale. **2.10,** Talk, Graves in Flanders. **2.35,** Orchestral Concert of Music by Composers killed in the War. Conductor: Gerhard Maasz. Soloists: Maria Moth-Nienstedt (Pianoforte) and Paul Moth (Cello). **3.30 (from Kiel),** Choral Concert in memory of the Fallen, relayed from Deutsches Haus. **4.0 (from Hanover),** Concert in Memory of the Fallen, relayed from the Castle Church. The Hanover Choral Society and the Rust Quartet. Soloists: E. Gabler (Clarinet) and H. Holze (Organ). **4.55,** Reading. **5.15,** Requiem Concert (Hermann Erdlen) in Memory of the Fallen. The Chamber Orchestra and the Station Mixed Choir. Conductor: The Composer. Soloist: Helene Guhl (Contralto). **5.35,** Reading. **6.0 (from Hanover),** Organ Recital of Music by North German Composers, relayed from St. Mary's Church, Göttingen. **6.30,** Talk: The Difficulty of developing Rowing as a Sport in Hamburg. **6.40,** Sports Notes. **6.55,** Weather. **7.0,** See **Leipzig. 7.50,** Battalion Eighteen—Drama in Four Acts (Hans Ehrke). **9.30,** Time, Weather, Announcements, Sports Notes and Police Report.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW.; and **DANZIG, 453.2 metres.**—**11.0 a.m.,** See **Berlin (Witzleben). 12 Noon,** Concert by the Königsberg Opera House Orchestra, conducted by Werner Richter-Reichhelm: Leonora Overture No. 3 (Beethoven); Maurerische Trauermusik (Mozart); The Unfinished Symphony (Mozart). **1.0 p.m.,** Talk on Chess. **1.30,** Talk for Young People. **2.0** (from **Danzig**), War Letters of Students Killed in Action. **2.30,** Concert by the Danzig Theatre Orchestra, conducted by Otto Selberg. Sports Notes in the intervals. **4.30,** Talk: Graves in Flanders. **5.0,** Reading from the Works of Hilde Bock. **5.30,** The Art of Playing the Pianoforte—Talk with Illustrations. **6.0,** Chamber Music by the Wind Instrument Ensemble of the Königsberg Opera House Orchestra; Soloist, Anita Oberländer (Soprano): Five Songs (Weber). (a) Ein Veilchen blüht im Tal, (b) Meine Farben, (c) Wiegenlied, (d) Das Mädchen an das erste Schneeglöckchen, (e) Mein Schatzerl is hübsch; Second Lithuanian Suite for Wind Instrument Quintet, Op. 44 (Max Laurischkus); Two Songs (Spohr), (a) Erwartung, (b) Rose; Two Songs (Johann Rudolf Zumsteeg), (a) Der Baum der Liebe, (b) Liedlein. **7.0,** Sports Notes. **7.10,** Death for the Fatherland—Two Speeches from Ancient and Modern Times: I, Pericles Oration on the Fallen Athenians; II, Johann Ludwig Schumacher, Der heilige Tod. **7.40,** Sacred Concert by the Wireless Choir and Orchestra, relayed from the Neurossgärter Church, Königsberg: Overture in D, No. 3 (Händel, arr. Franz Willner); Choral Passion for Mixed A-Capella Choir for Five Voices and Three Solo Voices (Hugo Distler); Den Gefallenen—for Four Voices—to Verse by Heynicke (K. W. Meyer); Organ Concerto in F, Op. 137 (Joseph Rheinberger); Conductor, Ludwig Leschetizky; Soloist, Organ Kreft (Organ). **9.10,** News and Sports Notes, followed by Concert Relay.

HILVERSUM

Announced **HUIZEN, 296.1 metres;** 20 kW. (7 kW. up to **4.40 p.m.**).—**11.55** to **4.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **11.55,** Sextet Concert. **1.40 p.m.,** Religious Address. **2.10,** Orchestral Concert. Selection from The Queen of Sheba (Gounod); Overture, Nachklänge aus Ossian (Gade); The Three Bears (Coates). **2.40,** A Radio Play. **3.25,** Concert (contd.): The Blue Pavilion (Armandola); Suite, Poppenluis (Englemann); La Gitana (Bucalosi); Gipsy Idyll (Piercy). **4.40 to 7.25,** Programme of the Christian Radio Society (N.C.R.V.). **4.40,** Choral Concert, with Gramophone Records. **5.30,** Divine Service, relayed from **Breukelen,** followed by Organ Recital by M. C. Verweys. **7.25** till Close Down, K.R.O. Programme. **7.25,** Programme for Invalids. **7.50,** Football Results. **7.55,** Concert by the K.R.O. Boys and M. J. Mossel (Songs). Schöne Isabella (Bontz); Melody (Holmes); Wir tanzen Weltschlager (Borchert); The Capricious Musical Box (Landor); Potpourri, Servus Wein (Dostal); Karolin (Weiss); Es war einmal ein Zigeuner (Ennegg); Was kümmert mich die ganze Welt (Abraham); Wir sind ja so fidel (Stransky). **In the interval at 8.40,** News. **8.55,** 'Cello Recital by M. R. Lanes. Toccata (Frescobaldi-Cassado); Adagio (Bach); Rondo (Fozart); Allegro spirituoso (Senallié); Cortège (Bosmans); The Flight of the Bumble Bee (Rimsky-Korsakov). **9.15,** Orchestral Concert. Soloist: M. R. Lanes ('Cello). Overture, Prometheus (Beethoven); Symphony No. 103 in D Minor (Haydn); Concerto in B Minor, Op. 104 (Dvorák). **10.20,** Epilogue by the Small Choir. **10.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres;** 8.5 kW.—**9.40 to 11.0 a.m.,** Programme of the Workers' Radio Society (V.A.R.A.). **9.40,** Orchestral Concert with M. G. Hesse ('Cello). **10.20,** Talk on the Cinema. **10.40,** Concert (contd.). **11.20,** Address. **11.40 to 4.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.) **11.40,** Time Signal. **11.42,** Choral and Orchestral Concert. **11.40,** Time Signal. **11.42,** Choral and Orchestral Concert. **1.40,** Weekly Book Talk. **2.10,** The Fate of the Rüdiger Expedition—Radio Play. **3.40,** Popular Music on Gramophone Records. **4.25,** Football Results. **4.40,** V.A.R.A. Programme for Children. **5.40 to 7.40,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). **5.40,** Book Review. **6.25,** Divine Service. **7.40** till Close Down, A.V.R.O. Programme. **7.40,** Time, News, and Sports Results. **7.55,** Concert by the Station Orchestra, conducted by Nico Treep. Soloist: Dusolina Giannini (Soprano). Overture, Le Roi d'Yvetot (Adam); Song from La Vestale (Spontini); Barcarolle from The Tales of Hoffmann (Offenbach); Song from Madame Butterfly (Puccini); Prelude (Rachmaninov); Three Italian Folk Songs: (a) In Mezzo al Mar, (b) Marella mia, (c) Cielito Lindo; French Military March (Saint-Saëns). **8.40,** Clinge Doorenbos in his Repertoire. **9.0,** Concert by Kovacs Lajos and his Dance Band. In the intervals, Viennese Music by the Schrammel Quartet. **10.50,** Light Music on Gramophone Records. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

473 metres; 60 kW.—**11.0 a.m.,** See **Berlin (Witzleben). 12 Noon,** Chamber Music: Septet (Beethoven); Songs. **1.30 p.m.,** Shorthand Lesson. **1.50,** Review of Books Old and New German Lyrics. **2.20,** Reading (H. Cappelmann). **2.45,** Talk on Literature. **3.5,** Talk: On Foot through Cyprus. **3.30,** Der eutsche Bettelmann — Radio Play (Ernst Wiechert). **4.30,** Programme in Commemoration of those who fell in the Great War—Choral and Instrumental Music. **5.15,** Talk: Towns of the Rhineland and Westphalia—Meschede. **5.45,** Talk; Germans report from all Parts of the World—Unemployed in New York. **6.10,** Sports Notes. **6.25 to 9.15,** National Day of Mourning—Programme by the Station Orchestra, conducted by Buschkötter: The Fifth Symphony (Bruckner). **7.25,** Programme from **Berlin (Witzleben). 9.0,** Programme by the Station Orchestra (contd.): Symphonic Prologue to a Tragedy (Reger). **9.30,** News, Sports Notes, and Silent Night.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW; and **DRESDEN, 319 metres.**—**10.30 a.m.,** Gottezeit ist die allerbeste Zeit—Cantata (Bach), by the Municipal and Gewandhaus Orchestra, the Choir of St. Thomas' and Soloists. **11.0,** See **Berlin (Königs Wusterhausen). 12 Noon,** See **Heilsberg. 1.0,** Weather and Time. **1.5,** Programme Announcements. **1.25,** Agricultural Hints. **1.35,** Esperanto Lesson. **2.0,** String Quartet in B Flat, Op. 9 (Barge), by the Genzel Quartet. **2.40,** Krümelchen—What the World looks like to an Eighteen Months Old Baby. **3.25,** Concert by the Leipzig Symphony Orchestra, conducted by Willy Steffen; Overture, Esther (Handel); Entr'acte Music No. 2 in B Flat from Rosamunde (Schubert); Funeral March (Gurlitt); Elegy (Siegl); Wiegenlied (Järnefelt); Deutsches Waldidyll (Niemann); Frieden (Ehrenberg). **4.25,** Talk: The Crocus Blooms!—a Spring Excursion in the Erz Gebirge. **5.0,** Songs of Composers killed in Action—Recital by Mara Duvés, with Introductory Talk. **5.40,** Chaconne from the Sonata in D Minor for Violin (Bach), by Gustav Fritzsche. **6.0,** Sports Report. **6.50,** Topical Talk. **7.0,** War Requiem (Hermann Ambrosius), for Choir, two Soloists, a Speaking Voice and Orchestra. **7.45,** Concert by the Symphony Orchestra, conducted by Theodor Blumer: Heldenklädge (Göhler); Overture, Manfred (Schumann); Adagio from the Serenade in D (Brahms); Symphonic Adagio (Scharrer); Variations and Rondo on an Old German Folk Song (Haas). **9.5,** News, followed by Orchestral Concert. In the intervals, Election Results from **Berlin (Witzleben).**

LINZ.—See **Vienna.**

MADRID

ARANJUEZ, EAQ, 30.43 metres; 20 kW.—**10.30 p.m.,** Concert of Variety Music. **10.45,** Humorous Talk. **11.0,** Talk. **11.40,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—**8.0 to 9.0 a.m.,** Topical Review. **2.0 p.m.,** Chimes, Time Signal, Theatre Notes and Concert by the Artys Orchestra. **4.0 to 7.0,** Interval. **7.0,** Chimes and Dance Music relayed from the Ritz Hotel. **7.30** (in an interval), Agricultural Talk. **8.30 to 9.30,** Interval. **9.30,** Chimes and Time Signal. **9.35** (approx.), Song Recital by Luis Nere (Soprano) and Franco Mar (Baritone), followed by an Interlude by Ramon Gomez de la Serna, Argentine Songs by Angel las Heras, and Flamenco Songs by Ricardo Fernandez El Dora, with Guitar accompaniment. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**11.5 a.m.,** Concert by the Station Orchestra, conducted by B. Trvdy. **12.30 to 1.15 p.m.,** See **Prague. 3.0,** See **Brno. 4.30,** See **Prague. 6.0,** Military Band Concert. **7.0,** See **Prague. 9.20,** See **Bratislava. 10.0** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres;** and **Nürnberg, 239 metres.**—**10.30 a.m.,** See **Leipzig. 11.0,** Orchestral Concert, relayed from Markredwitz. **12.5 p.m.,** Time, Weather and Programme Announcements. **12.15,** Agricultural Talk. **12.35,** A Dialogue about Gramophone Records, with Illustrations. **1.30,** Chess Lesson. **2.15,** Concert of Folk Music by a Schrammel Trio and Yodel Duo. **2.50,** Reading: A Wintry World (A. Heitz). **3.5,** Music for Children by Children. The Children's Symphony (Diabelli). **3.25,** Orchestral Concert, conducted by Erich Kloss. In the interval, a Humorous Reading. **4.35,** Talk: The History of Alchemy. **5.0,** Provincial Programme, relayed from **Markredwitz. 6.5,** (from **Nürnberg**), Brahms Song Recital by Elena Gerhardt (Soprano): Vor dem Fenster; Bei dir sind meine Gedanken; Mainacht; Der Gang zum Liebchen; Liebestreu; Therese; Verzagen; Schön wie dass ich dir weihte; Blinde Kuh; Immer leiser wird mein Schlummer; Auf dem Schiffe; Der Tod, das ist die kühle Nacht; Salamander; Von ewiger Liebe. **6.40,** Weather and Sports Notes. **6.50,** The Miniature Zoo — a Radio Sequence with Songs and Music (Alois Johannes Lippl and Hermann Wenninger). **7.40,** A Dialogue on the Life of Friedrich Hebbel. **8.0,** Concert by the Station Orchestra, conducted by Karl List: Soloist: Hellmuth Baentsch (Pianoforte); Overture, Russlan and Ludmilla (Glinka); Rondo (Pringsheim); Concerto for Pianoforte and Orchestra (Scriabin); Poetische Spaziergänge (Brandts-Buys); Boston Intermezzo (Nick); Symphonic Poem, Viola (Sandberger). **9.20,** Time, Weather, News and Sports Notes. **9.45,** Serenade from **Langenberg. 11.0** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365,8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres;** and **Rjukan, 447.1 metres.**—**9.15 a.m.,** Ski-ing Report. **9.20,** Divine Service, relayed from **Bodö (453.2 metres). 4.,** Orchestral Concert, relayed from **Trondheim (495.8 metres). 5.0,** Song Recital, relayed from **Trondheim. 5.30,** Talk on Bizet's Arlesienne, with Gramophone Illustrations. **6.0,** Parliamentary Notes. **6.15,** Weather and News. **6.30,** Violin Recital by Leif Halvorsen. **7.0,** Recitations. **7.30,** Sacred Concert, relayed from the Cathedral, **Stavanger (240.6 metres). 8.40,** Weather and News. **9.0,** Topical Talk. **9.15,** Concert by the Station Orchestra, conducted by Hugo Kramm. Symphonic Poem, Die Moldau (Smetana); Valse triste (Sibelius); Minuet (Kristoffersen); Andante cantabile (Tchaikovsky); Spanish Dance, No. 8 (Sarasate); Potpourri (Morena). **10.15,** Dance Music on Gramophone Records. **11.0** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—**9.25 a.m.,** Bible Reading. **9.40,** Sacred Music. **10.5,** Agricultural Talk. **11.45,** Giornale Radio. **12 Noon to 1.0 p.m.,** Concert by the Sunny Band Quartet. In an interval at **12.30,** Time, Announce-

ments and Weather. 4.30 to 5.30, Popular Music on Gramophone Records. 7.0, Dopolavoro Notes and Giornale Radio. 7.20, Sports Notes. 7.30, Time and Announcements. 7.45, Symphony Concert, conducted by A. La Rosa Parodi. In the interval, Talk: G. Cepparelli, Painter and Poet. After the Concert, Songs. 9.55, News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals). 12.30 p.m., Concert from **Paris (Ecole Supérieure) (447.1 metres).** 1.0 to 2.0 p.m., Concert by the Rex Orchestra. 5.45, Le Journal Parlé. 6.45, Programme for Children. 7.20, Weather Report. 7.30, Gramophone Concert: Part 1—Mozart Programme: Selection from Don Giovanni, Figaro, The Magic Flute, and Così fan tutte; Part II—Selection from The Merry Widow (Lehár); Czardas (Grossmann); Waltz, Frühlingsstimmen (Joh. Strauss); Melodious Memories (Finck); Quadrille from La Mascotte (Audran). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—9.45 a.m., Bible Reading. 10.0, News. 10.5, Sponsored Concert. 11.5, Film Stars—Sponsored Programme. 11.40, Sponsored Gramophone Concert. 12.15 p.m., Sound Film Music. 1.30, Sponsored Concert. 2.0 to 6.45, Interval. 7.0, Sports Notes. 7.15, Popular Music on Gramophone Records. 7.30, Talk: Catholics and the Radio. 8.0, Sponsored Concert. 8.30, Light Music on Gramophone Records. 8.45, Interval. 9.0, Dramatic Programme. 9.30, Interval. 9.45, Concert of Light Music by the Station Symphony Orchestra. 10.45, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 k.W—7.45 a.m., Light Music on Gramophone Records. 8.0, Press Review and Weather. 8.30, Physical Culture. 10.0, Elementary Book-keeping Lesson. 10.20, Advanced Book-keeping Lesson. 10.40, Spanish Lesson. 11.30 to 12 noon, Programme in English by the I.B.C.; Gramophone Concert, T. St. A. Ronald announcing: Unforgotten Melodies, Part I, by Mellow and Rich; Sandy in Hospital, or Down with the Flue, by Sandy Powell; Sue, Sue, Sue, by G. H. Elliott; Barcarolle from The Tales of Hoffmann (Offenbach), with Genuine Bird Singing by a famous Choir of Canaries; The Cobbler, by the Four Smith Brothers; In the Shadows, by Lozall's Picture House Organ, played by Frank Hermann;

MARCH 12th SUNDAY *continued*

Hilly Billy Song Favourites, Part I, by Monte Hunter; Popular Tunes from the latest Talkies, by Ned Fox's Film Fans. 12 noon, Religious Address by the Reverend Father Lhande. 12.20 p.m., Sacred Music: Andantino (Vierne)); Fantasia No. 3 (Tournemire). 12.30. Bilboquet. 12.45, Press Review, News and Weather. 1.0, Orchestral Concert. 1.30 to 5.0, Programme in English by the I.B.C. 1.30, Concert on Gramophone Records. 3.0, Orchestral Concert: March, Marec; Liebestraum (Liszt); Selection from "The Country Girl" (Monckton); Waltz, Vienna City of my Dreams (Siczenisky); Selection from "The Arcadians" (Monckton); Selection from "Rose Marie" (Friml). 3.30, Dance Music. 5.0, Tea-Time Variety Hour. Mr. S. H. C. Williams announcing. 5.0, Second Lenten Sermon by the Reverend Father Pinard de la Boullaye, relayed from Notre Dame, Paris. 6.30, Variety Concert. 7.0 to 8.0, Programme in English by the I.B.C. Film Fans Hour, Mr. S. H. C. Williams announcing. 8.30, News, Sports Notes and Weather. 8.45, Radio Paris Circus. 9.15, Press Review and News. 9.30, Music Hall Programme: Soloist, Monique Berger (Songs); Carnival Overture (Dvorák); Songs: Menuet fleuri (Gaune); Ballet Music from Isis (Bouincontro); Piece (Kálmán); Ballet de cour (Pierné).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK on 48.86 metres and 25.27 metres.**—9.0 p.m., Carnegie Tech. Women's Glee Club. 9.30, Vesper Services from Shadyside Presbyterian Church. 10.30, Pages of Romance, from **New York.** 11.0, Scaled Power, from **New York.** 11.30, Time Signal. 11.31, Weather Report. 11.32, Teaberry Sport Review. 11.37, Press News Reelet. 11.42, Strange Facts. 11.44, Temperature Report. 11.45, Programme to be announced. 12.0 **Midnight,** Time Signal and KDKA Orchestra. 12.30 to 2.45 a.m. **(Monday), New York** Relay. 12.30, Great Moments in History. 1.0, Chemie exquise. 1.30, Mexican Symphonic Marimba Orchestra. 2.0, Twenty Thousand Years in Sing Sing. 2.30, Walter Winchell. 2.45, Mary Steele. 3.0, D. W. Griffith's Hollywood. 3.15, Real Silk. 3.45, The Westinghouse Glee Club. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.15, Press Last Minute News. 4.20, Alexander Roy (Tenor). 4.30, Jesse Crawford (Organist), from **New York.** 5.0, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—9.0 a.m., Opening of the Slovak Exhibition in Prague. 10.0, See **Bratislava.** 10.30, Alois Jirasek Programme. 11.0, Chimes. 11.5, See **Moravská-Ostrava.** 12.30 p.m., Talk: From Sumova to the Tatra Mountains. 1.0, Agricultural Report. 1.15, Talk on Social Hygiene. 1.25 to 3.0, Interval. 3.0, See **Brno.** 4.30, Talk: In the Remote Regions of Persia. 4.45, Variety Music on Gramophone Records. 5.0, German Transmission: Talk with Music Illustrations: 140 Years of Balls and Dances followed by News. 6.0, Chimes. 6.1, See **Moravská-Ostrava.** 7.0, Popular Concert. 8.0, Time Signal. 8.1, Concert by the Station Orchestra, conducted by Jeremias: Soloist: Kitty Cervinkova (Violin): Overture to a Shakespearean Comedy (Jirak); Concerto in A Minor for Violin and Orchestra, Op. 53 (Dvorák); Legend of Happiness, Op. 83 (Foerster). 9.0, Time Signal. 9.1, News Bulletin. 9.20, See **Bratislava.** 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE, 680 metres,** and **GENEVA, 760 metres.**—6.0 p.m. (from **Lausanne**), Saxophone and Pianoforte Recital. 6.40, Sports Notes, News and Announcements. 7.0 (from **Geneva**), Reading. 7.15 (from **Geneva**), Concert of Chamber Music by the Station Quartet. 8.0 (from **Genava**), L'Amour Médécin Comedy (Molière), with Music by Lully. 9.0, News Bulletin and Weather Forecast. 9.15 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres;** and **2RO, 25.4 metres.**—9.10 a.m., News, Sports Notes and Amusement Guide. 9.30, Agricultural Report. 9.45, Bible Reading. 10.0 to 11.0, and 11.30 to 1.30 p.m., See **Turin.** In the interval at 12 **Noon,** Time and Announcements. 2.45 **(Naples),** Shipping and Sports Notes. 3.0, Football Report. 3.15, Orchestral Concert with Songs. Sports Notes in the Interval. 4.0, Symphony Concert, conducted by Victor de Sabata, relayed from the Augusteo. 6.30, Sports Notes, Football Report, Dopolavoro Notes and News. 7.45, La donna perduta—Operetta in Three Acts (Piedri). In the intervals: Talk: The Sala Dante in Rome, and Talk on Science. News after the Operetta.

SALZBURG.—See **Vienna.**

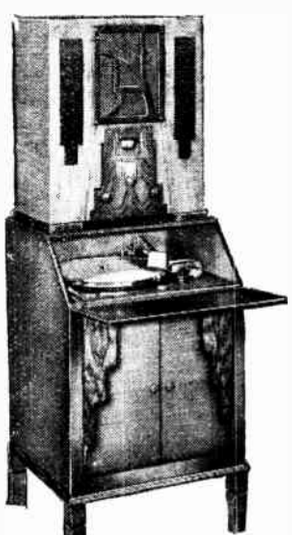
SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE, 244.1 metres,** and **BERNE, 245.9 metres.** 9.0 a.m. (from **Berne**), Protestant Address. 9.45 (from **Berne**), French Music of the Sixteenth and Seventeenth Centuries, by Carl Kremer (Violin), Hans Leonhardt ('Cello), and A. Heinichen (Harp). 10.20 (from **Berne**), French Songs on Gramophone Records. 10.40 (from **Berne**), Reading (Helmut Schilling). 11.0 (from **Zürich**), Concert by the Radio Orchestra. 11.28, Time Signal and Weather Forecast. 11.30, News Bulletin. 11.40 (from **Zürich**), Concert by the Radio Orchestra (contd.). 12.30 p.m. (from **Berne**), Barrel Organ Concert, Yodelling in the interval. 1.0 (from **Berne**), Talk for Women. 1.30 to 2.30, Interval. 2.30 (from **Berne**), Concert of Waltzes and Marches by the Berne Mandoline Orchestra. 3.5 (from **Berne**), Guitar Recital by Fritz Wörsching. 3.35 (from **Berne**), Old Songs by the Berne Male Voice Choir, conducted by Ernst Tanner. Soloist: Felix Löffel. 4.20 to 5.30, Interval. 5.30 (from **Berne**), Literary Talk in French: The Novel from 1880-1910—Bourget and Loti. 6.0, Time Signal, Weather Forecast and Sports Notes. 6.5 (from **Berne**), Allegro con spirito and Allegro from the Brandenburg Concerto No. 3 (Bach), on Gramophone Records. 6.15 (from **Berne**), Stefan Zweig reads from his own Works. 6.45 (from **Berne**), Violin Duets by Hungarian Composers, played by Emmy Born and Walter Kägi. 7.15 (from **Zürich**), Concert by the Radio Orchestra. 7.55 (from **Berne**), Folk Music by the Berne Yodelling Club and the Echo vom Thunersee Orchestra. 8.30, Weather Forecast and News Bulletin. 8.40 (from **Basle**), Sports Bulletin. 8.50 (from **Basle**), Relay from the Municipal Casino. 10.0 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres, 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.**—10.9 a.m., Divine Service. 11.45, Weather. 11.50 to 2.0 p.m., Interval. 2.0, Song and Pianoforte Recital by Märta Lundell and Brita Hjort, relayed from **Malmö, 231 metres.** 2.30, Talk in French. 3.0, Pro-



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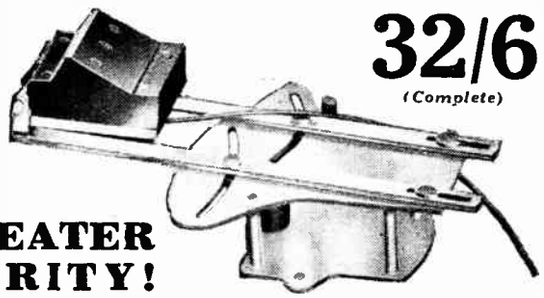

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MARCH 12th SUNDAY continued

gramme from Children, relayed from **Malmö**. **3.30**, Popular Music on Gramophone Records. **4.30**, Talk. **5.0**, Evensong. **6.30**, Pianoforte Recital by Hedvig Stein. **7.0**, A Play (Josef Kjellberg). **7.40**, Orchestral Concert. Soloist: Juan Manén (Violin). Serenade (Miaskovsky); Concerto No. 3 in B Minor for Violin and Orchestra (Saint-Saëns); Nocturne (Landré); Overture, Die Dame Kobold (Weingartner). **9.0**, Concert of Light Music. **10.0** (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**9.30 a.m.**, Orchestral Concert of Light Music, conducted by Maurice de Villers. **10.45**, Protestant Address in German. **11.30**, Catholic Service in French. **12 Noon**, Mozart Concert on Gramophone Records: Overture, The Magic Flute; Jupiter Symphony; Overture, Idomeneo; German Dances. **12.45 p.m.**, News. **1.0**, Time. **1.1**, Gramophone Concert of Variety Music. **2.0**, Agricultural Talk in French. **2.30**, Concert, relayed from **Paris**. **4.30**, Pasdeloup Symphony Concert, relayed from the Théâtre des Champs-Elysées, **Paris**. **6.45**, Medical Talk in German. **7.0**, Sports Notes. **7.15**, Popular Music on Gramophone Records. **7.30**, Time, News, and Sports Notes. **7.45**, Music by André Messter on Gramophone Records. **8.20**, Lottery Results. **8.30**, Alsatian Programme. Part I.—Concert of Alsatian Music by René Monché. Part II.—Bym Hierotsvermittler (At the Marriage Broker's) — One-act Comedy (Charles Grunder). **10.30**, Dance Music on Gramophone Records. **11.0**, Quintet Concert, conducted by Jean Clergue, relayed from **Radio Coloniale (Paris)**, **25.63 metres**: Manfred (Schumann); Pensée d'automne (Massenet); Romance (Aubert); Ballet Music from Les deux pigeons (Messager); Une nuit à Lisbonne (Saint-Saëns); Hommage à Rameau (Debussy); Spring Song (Mendelssohn); Yes (Maurice Yvain). **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.**—**10.30 a.m.**, Remembrance Day Programme, relayed from the Festhalle, Karlsruhe. **11.30**, Remembrance Day Music on Gramophone Records. **12.30 p.m.** (from **Mannheim**). Talk: Are Hand-made Goods too expensive? **1.0**, Violin and Pianoforte Recital by Hermann Hubl and Dagmar Benzinger. Sonata in A Minor, Op. 105 (Schumann); Sonata No. 2 in C Minor, Op. 30 (Beethoven). **1.45**, Remembrance Day Music on Gramophone Records. **2.30**, See **Frankfort**. **3.30**, Chamber Music, relayed from a Private House. Introductory Talk; Music for Flute, Clarinet, Violin and Pianoforte (Reinstein); Divertimento for Violin, Viola and 'Cello (Vicenz); Ein kurioser Kaffeeklatsch, for Pianoforte, Violin, Viola and Flute (Weisz). **4.30**, Remembrance Day Programme—Literature and Music. **4.50**, Brahms Concert for the Centenary of his Birth. Trio in B, Op. 8, for Violin, 'Cello and Pianoforte; Four Songs by Hermann Bieth (Bass); String Quartet in C Minor, Op. 51, No. 1. **6.0**, Sports Notes. **6.20**, Programme in Memory of the Fallen. Funeral March from The Twilight of the Gods (Wagner); Recitations: (a) Wir Toten (Meyer), (b) Extracts from The Persians (Aeschylus), (c) Requiem (Hebbel); Rodelinda's Aria from Rodelinda (Händel); Recitation, Nun hast du mir den ersten Schmerz getan (H. v. Chamisso); Recitation, Das Vermächtnis der Toten (Dwinger); Totenmensch from Saul (Händel); Recitation, Der Frieden (Hölderlin); Recitation, Kein schwerer Tod ist in der Welt (Vogel); Wir treten zum Beten. **7.0**, Organ and Violin Recital, relayed from St. Mark's Church. **8.5**, See **Frankfurt**. **9.35**, Time, News, Weather, Programme Announcements and Sports Notes. **10.5**, Talk on Anselm Feuerbach and Hans von Marées. **10.20** (approx.), Close Down.

SUNDSVALL.—See **Stockholm**.

TOULOUSE

RADIOPHONIC DU MIDI, 385 metres; 8 kW. **6.0 p.m.**, News Bulletin. **6.15**, Light Music. **6.30 to 7.0**, Programme in English by the I.B.C. Concert of Dance Music: Can't we meet again? What more can I ask? When anybody plays or sings; Every Woman thinks she wants to wander; Wah-dedah; Sweet Rhythm; I'm playing with Fire; Here it is Monday, and I've still got a Dollar; Ain't I the lucky one? Underneath the Harlem Moon. **7.0**, Orchestral Music. **7.15**, Racing Results, Market Prices and News. **7.25**, Local News. **7.30**, Popular Melodies. **7.45**, Opera Music. **8.0**, Music by a Viennese Orchestra. **8.30**, Opera Music. **8.45**, Light Music. **9.0**, Operetta Music. **9.15**, Symphonic Poem, Les Préludes (Liszt). **9.30**, Popular Songs. **9.45**, Accordion Solos. **10.0**, Military Music. **10.15**, North African News. **10.30 to 11.30**, Programme in English by the I.B.C. **10.30**, Military Band: Selection from San Toy; El Abanico; Blaze away; Piccolo Solo, La Grive; Light of Foot; Selection, The Thistle. **11.0**, Vocal Concert; Orchestral Selection; Vienna, Vienna; Little Grey Home in the West (Löhr); Take a Pair of Sparkling Eyes (Sullivan); Indian Love Lyrics (Woodforde-Finden); Roses of Picardy (Haydn Wood); O Sole mio (di Capua); Orchestral Selection, Ancliffe Waltz Favourites. **11.30**, Humorous Sketches. **11.45**, Hawaiian Guitar Music. **12 Midnight**, Weather and Announcements. **12.5 a.m. (Monday)**, Organ Recital. **12.15**, Instrumental Music. **12.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**8.40 a.m.**, See **Turin**. **8.55**, Mass from the Cathedral of San Giusto. **10.0 to 10.20**, Agricultural Talk. **11.0** till Close Down. See **Turin**.

TRONDHEIM.—See **Oslo**.

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres**; and **Florence, 500.8 metres.**—**8.40 a.m.**, Giornale Radio. **8.55 to 9.40**, Interval. **9.40**, Agricultural Talk. **10.0**, Mass from the Church of the Annunciation, Florence. **11.0 to 11.15**, Bible Reading. **11.30**, Orchestral Concert, conducted by Ugo Tansini. In the interval at **12.0 Noon**, Time and Announcements. **12.30 p.m.**, Orchestral Concert. **2.30**, Orchestral Concert. Overture, Zaida (Mozart); Dance (Van Westerhout); La Serenata (Tosti); Selection from La Wally (Catalani); Idyll (Strauss); Fantasia Ai negri (Cortopassi); Sports Notes in the intervals. **3.40**, Light Music on Gramophone Records, and Sports Notes. **4.0**, See **Rome**. After the Concert, Giornale Radio, and Sports Notes. **6.0**, Dopolavoro Notes. **6.5**, Light Music on Gramophone Records. **6.30**, Time, Announcements and Gramophone Records (contd.) **7.0**, Giornale Radio, Sports Notes and Variety Music on Gramophone Records. **7.45**, L'amore tra i pampini (Love among the Vine Leaves) Operetta in Three Acts (de Micheli). In the intervals, Talk, Theatre Notes and Giornale Radio.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres**; and **Salzburg, 218.5 metres.**—**10.30 a.m.**, Relay of the Ski-Jumping Championship from the Lichtenstein Ski-Jump on Mt. Semmering. **10.45**, From Strauss to Lanner—Concert by the Vienna Symphony Orchestra, conducted by Martin Spörr. In the interval at **11.40** (approx.), Report on the Close of the Ski-Jumping Championship from Mt. Semmering. **12.30 p.m.**, Popular Music on Gramophone Records. **1.0 to 2.0**, Interval. **2.0**, Time and Programme Announcements. **2.5**, Book Review. **2.30**, String Quartet in E Flat (Bittner). **3.10**, Radio Reports: Mt. Semmering To-day, followed by Dance Music from the Hotel Panhaus, Semmering. **4.0**, Concert by the Vienna Chamber Orchestra. **5.30**, Talk: The Romantic Scenery on the Lower Danube. **6.0**, Karl L. Kossak-Raytenau reads from his own Works, with Introductory Talk. **6.30**, Time, Sports Notes, and Programme Announcements. **6.40**, Chopin Pianoforte Recital by Julius Isserlis: Sonata in B Minor, Op. 58; Waltz in A Flat; Nocturne in F Sharp; Six Etudes from Op. 10 and Op. 25. **7.20**, Berryl discontinues Payment—Radio Play (Franz Carl Selte). **8.35**, News Bulletin. **8.50**, Orchestral Concert, conducted by Hans Winslöw.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.**, Time Signal and Bugle Call from the Tower of St. Mary's Church, Cracow. **11.5**, Programme Announcements. **11.10**, Weather Forecast. **11.15**, Grieg Concert by the Warsaw Philharmonic Orchestra, conducted by J. Ozieminski, and the Lutnia Warsawska Mixed Choir, conducted by P. Marsynski; Soloists: J. Paszkowska (Contralto), E. Szabranska (Mezzo-soprano), and T. Lucaj (Baritone): Suite from Sigurd Jorsalfar; First and Second Suites from Peer Gynt; Scenes from Olaf Trygvason; for Soloists, Mixed Choir and Orchestra. In the interval, Talk on Health Insurance. **1.0 p.m.**, Agricultural Talk. **1.20**, Musical Programme. **1.30**, Agricultural Talk. **2.0**, Musical Programme (contd.). **3.0**, Programme for Young People. **3.25**, Light Music on Gramophone Records. **3.45**, Talk. **4.0**, 'Cello and Pianoforte Recital. In the interval, Announcements. **4.55**, Programme Announcements. **5.0**, Concert of Light Music. In the interval, News. **6.0**, Miscellaneous Items. **6.25**, Reading, relayed from **Lwów, 381 metres**. **7.0**, Concert of Opera Music by the Station Orchestra, conducted by Oziminski. In the interval, Sports Notes. **8.40**, Violin Recital by S. Frenkel: Concerto in B Flat, Op. 4 No. 1, for Violin with String Accompaniment (Vivaldi - Frenkel); Melody (Nick-Frenkel); Minuet (Paderevski-Kreisler); Chanson Louis XIII and Pavane (Couperin-Kreisler); Canzonetta (d'Ambrosio); Perpetuum mobile (Ries). **9.0**, Dance Music. **9.55**, Aviation Weather Report and Police Notes. **10.0**, Dance Music (contd.). **11.0** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender**.

MONDAY

MARCH THE THIRTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Chamber concert. Argentine feature programme.
LONDON REGIONAL	Variety programme. Orchestral music of F. H. Cowen.
MIDLAND REGIONAL	Choral concert from Bromsgrove.
NORTH REGIONAL	Folk Songs of the North.
WEST REGIONAL	Orchestral concert from the National Museum of Wales.
BELFAST	Light orchestral music. Military Band.

ABROAD

ATHLONE	8 p.m. The Sligo Musical Society.
BERO-MUNSTER	7.45 p.m. Wagner concert from Zurich.
BRUSSELS (No. 1)	8 p.m. The Symphony Orchestra, conducted by J. Kumps.
BRUSSELS (No. 2)	8 p.m. Acts 1 and 2 of "Ondergang," opera by A. Meulemans.
COPENHAGEN	7.30 p.m. Operetta: "The Gipsy Baron," by J. Strauss.
HILVERSUM	7.45 p.m. Concert, with songs by Franz Baumann.
RADIO PARIS	8 p.m. Opéra Comique: "La Dame Blanche," by Boieldieu.
ROME	4.30 p.m. Concert from the Royal Philharmonic Academy.
SOTTENS	7.30 p.m. Symphony concert conducted by E. Ansermet.
STRASBOURG	8.30 p.m. Song recital by Lotte Lehmann.
WARSAW	7 p.m. Operetta: "Das Vielchenmädel," by Hellmesberger.

ALGIERS

363.3 metres; 13 kW.—**7.0 p.m.,** Financial Notes. **7.10,** Shipping Notes. **7.15,** Weather Forecast and Agricultural Report. **7.20,** Songs from Faust (Gounod). **7.55,** News Bulletin. **8.0,** Time Signal. **8.2,** Book Review. **8.15,** Tchaikovsky Concert by the Station Orchestra, conducted by Hubert Guillet: Overture, Romeo and Juliet; The Pathetic Symphony; Waltz from Eugene Onegin. **9.30,** News Bulletin. **9.35,** Harpsichord Solos. **9.45,** Two Duets from Les Dragons de Villars (Maillart). **9.55,** News Bulletin. **10.0** (approx.), Close Down.

ATHLONE

413 metres; 60 kW.; and **Cork, 224.4 metres.**—**1.30 to 2.0 p.m.,** Time Signal; Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** Talk for Farmers: Seeds for Hay and Pasture. **8.0,** Concert by the Sligo Musical Society relayed from the Town Hall, Sligo. **9.0,** Three Reasons: Sketch by Sean O'Shea and Company. **9.30,** Uilleann Pipe Solos by J. Brophy. **9.45,** Song Recital by Joseph Guinan. **10.0,** Traditional Trio Music. **10.30,** Time Signal; News; Weather Report and Close Down.

BARCELONA

RADIO BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **6.30,** Quintet Concert relayed from the Café de la Rambla. **7.30,** Sports Notes; Exchange Quotations and Talk in Catalan. **8.0,** Light Music on Gramophone Records and News. **9.0,** Chimes from the Cathedral; Weather Forecast; Exchange Quotations and Market Prices. **9.5,** Humorous Review of the Week in Verse. **9.15,** Concert of Sardanas. **10.0,** Violin and Pianoforte Recital by Julio Jarque (Violin) and Rosaura Coma (Pianoforte). **10.30,** Concert by the Station Orchestra: Overture: Fingal's Cave (Mendelssohn); Minuet from Iphigenia in Aulis (Gluck); Gavotte (Henneberg); Bagatelle for Violin (Abad Alday); Allegro maestoso (Rimsky-Korsakov); Saturnales (J. Massenet). **11.0,** News. **11.30,** Dance Music relayed from the Excelsior Dance Hall. **12 Midnight** (approx.), Close Down.

BARI

269.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes, Tourist Talk and Dopolavoro Notes. **7.20,** Giornale Radio and Weather. **7.30,** Time and Announcements. **7.35,** Manon Lescaut—Opera in Four Acts (Puccini). On Gramophone Records. In the intervals, Talk and Theatre Notes. After the Opera, News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—**4.0 p.m.,** Dialogue in German. **5.55,** Time and Programme Announcements. **6.0,** Orchestral Concert: March (Dominis); Potpourri (Dominis); Serbian Dance (Frait); Selection from La Mascotte (Audran); Indian Love Lyrics (Woodforde-Finden); Finale from Aricle die Tochter der Luft (E. Bach). **7.0,** Programme relayed from **Zagreb (307 metres). 9.0,** News, followed by Dance Music on Gramophone Records.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **2.0,** Talk for Women. **2.30,** Weather and Exchange. **2.45,** Review of Books. **3.0,** Reading: A Journey in the Sahara. **3.30,** Concert from **Berlin (Witzleben). 4.10,** Talk: The Political Campaign against the War Guilt Accusation. **4.30,** Song Recital by Lillan von Graufelt (Soprano); Spring Song (Mendelssohn); Abendlied (Schumann), Jüngling an der Quelle (Schubert); Auftrage (Schubert); Give me your Heart (Melartin); Titania (Järnefelt); Lonely (Kilpinen); Sun Rays (Kilpinen); Song (Kilpinen); Tales of the Vienna Woods (Joh. Strauss). **5.0,** Talk for Civil Servants. **5.30,** Making Music with Invisible Partners. **5.55,** Weather and Announcements. **6.0,** French Lesson. **6.30,** A Poem. **6.35,** Programme of Light Music. **7.0,** Concert from **Stuttgart. 8.0,** Talk: Public Responsibility in Germany. **8.30,** Pictures from an Exhibition (Moussorgsky), played by Claudio Arrau. **9.10,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**1.0 p.m.,** Tristan und Isolde—Opera (Wagner), by the Cast of the Festspielhaus, Bayreuth, on Gramophone Records. **1.55,** Exchange and Market Prices. **2.20,** Talk on Charlotte Stieglitz. **2.35,** Violin and 'Cello Recital. Duet in D (Carl Stamitz); Duet in Three Movements (Georg Fuhr). **2.55,** Song Recital by Anna Bellé (Soprano): Four Songs (Robert Franz): (a) Aus meinen grossen Schmerzen, (b) Abends, (c) Die blauen Frühlingsaugen, (d) Es hat die Rose sich beklagt; Four Songs (Reger): (a) Mittag, (b) Von der Liebe, (c) Wenn die kleinen Kinder, (d) Wenn die Linde blüht. **3.15,** Post Office Talk: The Removal of a Telephone. **3.30,** Concert of Light Music from the Rheinterrasse of the Haus Vaterland. **4.30,** Talk: Gothic Script. **4.50,** Talk for Young People: Dumb Birds. **5.10,** Sonata in A Minor (Mozart), by Else C. Kraus (Pianoforte). **5.30,** Das Ende vom Lied—Vom Lied das Ende (Hans Johst), recited by the Author. **5.55,** The Witzleben Station informs its Listeners. . . . **6.0,** Topical Talk. **6.15,** Talk on Music. **6.25,** Emil Nikolaus von Reznicek Concert by the Berlin Wireless Orchestra, conducted by the Composer. Overture-Fantasia, Raskolnikov; German Folk Songs from Des Knaben Wunderhorn: (a) Der traurige Garten, (b) Gedankenstille, (c) Schwimm hin, Ringlein; Symphony in D. **7.25,** Announcements. **7.30,** An Excursion with the Microphone. **9.0,** Weather, News and Sports Notes, followed by Dance Music from the Roof Garden of the Café Berlin. **11.0** (also on **Zeesen, 31.38 metres**), The Heritage—Voices between Life and Death.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—**7.30 p.m.,** News and Exchange. **7.40,** Talk: Bordeaux, a Hundred Years ago. **7.55,** Lottery Results. **8.0,** Programme for Children. **8.15,** Charades. **8.20,** News and Weather. **8.30,** Concert of Classical and Modern Music.

BRATISLAVA

279 metres; 11 kW.—**3.10 p.m.,** Military Band Concert. **4.10,** See **Prague. 4.50,** Pianoforte Recital by R. Bass: Five Pieces (Chopin): (a) Fantasia in F Minor, (b) Waltz in E Minor, (c) Etude in E, (d) Etude in G Sharp Minor, (e) Etude in G Flat; Aria and Ballet Music from The Bartered Bride (Smetana); Liebesträum (Liszt); Hungarian Dance (Brahms); Slav Dance (Dvorák); Waltz in D Flat (Bass); Waltz (Chopin-Bass). **5.30,** Talk on the French Language and Literature. **5.40,** Popular Music on Gramophone Records. **6.0,** See **Prague. 6.10,** Technical Talk. **6.25,** See **Brno. 6.40,** A Play (Zatlonkal). **7.30,** See **Moravská-Ostrava. 8.25,** See **Prague. 9.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.**—**12.10 p.m.,** Gramophone Concert of Variety Music. **12.45,** Time, Weather, News, Exchange and Shipping Report. **1.5,** Gramophone Concert. Overture, Ein Feldlager in Seldesien (Meyerbeer); Sicilienne (Paradis); Aria, Che gelida manina, from La Bohème (Puccini); Ständchen (Heykens); Chanson triste (Tchaikovsky); Yodel from the Zillertal; In a Persian Market (Ketelbey); Waltz, Fascination (Marchetti). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Book Review. **3.0,** Dialogue: Personal Impressions of America's Intellectual Life and its Universities. **3.20,** Orchestral Concert, conducted by Franz Marszalek. Second Slav Rhapsody (Friedemann); Overture, Phèdre (Massenet); Suite, Kinderlieder (Bleeb); Old Russian Dance Pictures (Clemus); Ballet Suite from Les petits riens (Mozart). **4.30,** Agricultural Prices, followed by a Talk on Modern Rent Problems. **4.55,** Educational Report. **5.15,** French Lesson. **5.40,** Programme to be announced. **6.5,** Talk: Research in Heredity—Fundamental Doctrines. **6.30,** Weather for Farmers and Market Prices. **6.35,** Light Music on Gramophone Records. **7.0,** See **Hamburg. 9.0,** Time, Weather, News, Sports Notes, Market Prices and Programme Announcements. **9.30,** Answers to Technical Correspondence. **9.40,** Talk by Erwin Osten: Through Germany as a Reporter. **10.0** (approx.), Close Down.

BRNO

342. metres; 35 kW.—**5.25 p.m.,** German Transmission: News, Elementary French Lesson and a Talk on Art. **6.0,** See **Prague. 6.25,** Talk. **6.40,** Balalaika Music. **7.10,** See **Prague. 7.30,** Concert by the Brno Symphony Orchestra, a Women's Choir and Soloists, relayed from the Stadium: Conductor: Bretislav Bakala. Psalm No. 129 for Organ, Baritone, Women's Choir and Orchestra (Hass); Concerto grosso (Bloch). **8.25,** See **Prague. 9.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW. **12 Noon,** Concert by the Small Station Orchestra, conducted by Leemans: Oriental Procession (Leemans); Three Oriental Miniatures (Fischer); Ballad for Pianoforte (Dupuis); Air (Kalkman); Three Pieces (Pierné); Meditation (Rasse); Romance for 'Cello (d'Angreves); Ballet Music from Hamlet (Thomas); On peut-on être mieux? (Gretry). **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert of Operetta Music: Overture: The Nuremberg Doll (Adam); Air from La Fille de Madame Angot (Lecocq); Rondo from François les Bas bleus (Messager); Melody from Les Dragons de Villars (Maillart); Two Airs from Les Brigands (Offenbach); Selection from The Merry Widow (Lehar). **2.0,** Programme for Schools. **5.0,** Concert conducted by Jean Kumps: The Unfinished Symphony (Schubert); Romance in F (Rubinstein-d'Indy); Meditation from Thais (Massenet-Marsick); Nocturne and Scherzo (Mendelssohn); Two Sketches (Soudant); Hungarian Dances (Brahms). **6.0,** Gramophone Concert: Symphonic Poem: Psyché (Franck); Le mariage de roses (Franck); Charade (Quintet); Petite Suite (Jongen); Overture: Nebuchadnezzar (Verdi); Aria from Norma (Bellini); Two Arias from Mephistopheles (Boito); Aria from I Puritani (Bellini); Serenade from Iris (Mascagni); Song from The Girl of the Golden West (Puccini); Overture: Don Pasquale (Donizetti). **7.15,** Walloon Report. **7.30,** Review for Women, and Film Notes. **8.0,** Concert by the Symphony Orchestra, conducted by Jean Kumps: Symphony in B Minor (Borodin); Les Danseuses de Kerionan (Duncan); Minuet (Duncau). **8.45,** Talk: The Flemish Influence in Education. **9.0,** Concert (contd.): Overture to a Drama (Dupuis); Symphony in C (de Malcingrean); Rondo Capriccioso for Violin and Orchestra (Saint-Saëns); Three Melodies (Marsick): (a) Le Jeune Berger; (b) Au Crépuscule; (c) Scherzo; Pianoforte Solos: (a) Mirologue (Marsick); (b) Malaguena (Albeniz); Marche Joyeuse (Chabrier). **10.0,** Le Journal Parlé. **10.10,** Gramophone Concert of Light Music. **11.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW. Programme in Flemish. **12 Noon,** Selection from The Barber of Seville Opera (Rossini) on Gramophone Records. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Morning, Noon, and Night (Suppé); Waltz, Le pas des fleurs (Delibes); Russian Melody (Akimenko); Spanish Dance for Pianoforte, Cadiz (d'Agrèves); Serenade for Flute and 'Cello (Titl); Serenade, The Blue Pavilion (Armandola); Selection from Les Géorgiennes (Offenbach). **2.0,** Educational Programme. **5.0,** Concert by Mickey's Club Jazz Attraction. **6.0,** Siegfried Idyll (Wagner) on Gramophone Records. **6.15,** Julia Tulkens recites from her own Works. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans: Prelude and Cortège from Déjanire (Saint-Saëns); Midnight on Maundy Thursday in Seville (Turina); In the Steppes of Central Asia (Borodin); Two Pieces for 'Celio (d'Agrèves); Introduction and Prelude for Pianoforte (Callemien); Dance, Nocturne, and March (Fischer). **7.15,** Talk: A Tour through Yugoslavia. **7.30,** Variety Item. **8.0,** Acts One and Two of Ondergang—Opera (A. Meulemans), relayed from the Royal Flemish Opera House, Antwerp. In the intervals, Gramophone Records: Rhapsody for Clarinet and Orchestra (Debussy); Romance in F for Horn (Saint-Saëns); Une soirée près du lac (Leroux); and Le Journal Parlé. **10.20,** Light Music on Gramophone Records. **11.0** (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—**3.0 p.m.,** Programme for Schools. **4.3,** Concert of Romanian Music by the Luca Orchestra. **5.3,** News and Time Signal. **5.10,** Talk. **5.25,** Concert by the Luca Orchestra (contd.). **6.0,** Talk on Romania: Her Banks. **6.40,** Light Music on Gramophone Records. **7.0,** String Quartet, Op. 67 (Brahms). **7.30,** Talk. **7.45,** String Quartet (Debussy) by the Pro-Atte Quartet. **8.15,** Light Music and Romanian Music by the Dinico Orchestra, relayed from the Enesco Restaurant. **9.0,** News.

BUDAPEST

550 metres; 18.5 kW.—Also relayed on **840 metres,** from **6.30 to 11.0 p.m.**—**4.30 p.m.,** Johann Szeghö Concert by Johann Halmos (Song.) and T. Kazacsay (Pianoforte); Chasse aux papillons; Tarantella; Bijoux; Sylvesternacht; Du bist der Morgen; Suite, Pfadfinderleben. **5.10,** German Lesson. **5.40,** Song Recital. **6.30,** Concert by the Opera House Orchestra, conducted by Otto Berg. **8.0,** News Bulletin. **8.5,** Concert by the Patroa Jazz Band and the Béla Bodrica Cigany Band, with Hungarian Folk Songs by Julius Szántho, relayed from the Café Patria. **11.0** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW. **11.0 a.m.,** Time Signal and Chimes from the Town Hall. **11.1,** Concert by Max Skalka's String Ensemble, relayed from the Hotel d'Angleterre. **2.20 p.m.,** Talk for Housewives. **2.30,** Concert by Carl Rydahl's Instrumental Ensemble. Soloist, Aida Lhoir (Pianoforte). Slovak March (Neruda); Waltz from Faust (Gounod); Selection from The Magic Flute (Mozart); Minuet from Berenice (Händel); Intermezzo from A Midsummer Night's Dream (Mendelssohn); Mazurka (Pecking); Pianoforte Solos: (a) Preludium in A Minor, and (b) Intermezzo in F Minor (Hilda Schested), (c) Thème passioné with Variations, (d) Elegy in E Minor, and (e) Intermezzo in B Minor (Nanna Liebmann); Selection from Den lille Princesse (Rygaard); Waltz Nordlys (Lumbye); Cradle Song (Danning); Torcador et Andalouse, from Bal costumé (Rubinstein); Potpourri (Ryming); Zaragossa (de Gredos). **4.40,** Exchange and Fish Market Prices. **4.50,** Talk relayed from the Aalborg Studio. **5.20,** English Lesson. **5.50,**

Weather Report. 6.0, News Bulletin. 6.15, Time Signal. 6.30, Talk: Confirmation, its Meaning and Form. 7.30, The Gipsy Baron—Operetta in Three Acts (Joh. Strauss). 9.30, News Bulletin. 9.45, Danish Music, by Louis Preil (Violin), Richard Madsen (Violin), Gunnar Frederiksen (Viola), Jens Sörensen ('Cello), and Ernst Hye-Knudsen (Flute). String Quartet in D (Andersen); Pieces for Flute, Violin, and Viola, Op. 55a (Emborg): (a) Allegro moderato, (b) Andantino, (c) Adagio-allegro moderato da capo. 10.15 (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**12 Noon,** Light Music on Gramophone Records. **12.30,** News Bulletin. **12.45,** Songs from Sound Films. **6.0 to 7.0,** Programme in English by the I.B.C. C. Danvers Walker, R. Chene and B. McNabb announcing. **6.0,** Concert of Songs for Hastings Listeners: Wine, Women and Song (Strauss); Because (d'Hardelot); My Dear Soul; Waltz, The Blue Danube (Stranss); The Second Minuet (Besly); The Sweetest Flower that Blows (Hawley); Waldteufel Memories, Parts I and II (arr. Finck). **6.30,** Military Band Concert for Eastbourne Listeners. Ständchen (Heykens); The Mad Major (Alford); Down South (Myddleton); Cupid's Army (Sievier); In the Sudan (Sebek); Selection from Floradora (Stuart); Carry On (Dundas). **7.0,** Local News and Variety Music on Gramophone Records. **7.30,** Radio Gazette. **8.0,** Listeners' Half-Hour and News. **8.30,** Concert relayed from **Dieppe. 10.0 p.m.** till Close Down, Programme in English by the I.B.C. **10.0,** Light Music: Good Evening; Ho Hum; My Baby just Cares for Me; Shoo the Hoodoo Away; There's Happiness over the Hill; More than you Know; Lazy Lousiana Moon; Pardon Me; Bye Bye Blues; Whistling in the Dark; A Girl Friend of a Boy Friend of Mine; With my Guitar and You; Goodbye to all That; Gipsy Melody; A Bench in the Park; Faithfully Yours. **11.0,** Orchestral Music: Selection from (a) The King of Jazz (Somers), (b) Wonder Bar (Kerscher), (c) The Three Musketeers (Friml), (d) Show Boat (Kern). **11.30,** Vocal Concert: Overture, The Caliph of Bagdad (Boieldieu); If I were King (Coslow); Song of Hybreas the Cretan (Elliott); A Soldier's Song (Mascheroni); In Sheltered Vale (Clarke); Prelude, The Witches Ride and The Gingerbread Waltz from Hansel and Gretel (Humperdinck). **12 Midnight,** Songs: Every Little Girl he Sees (Akst); Here in my Heart (Campbell); Nobody Cares if I'm Blue (Clarke); Tuneful Melodies on a Piano; O dem golden slippers (Bland); When it's Sunset on the Nile; Poor old Joe (Foster). **12.30 a.m. (Tuesday),** Xylophone Solos: Selection from Carmen (Bizet); Hornpipe (Ross); The Huntsman; Liebesfreud (Kreisler); Looping the Loop; First Waltz (Durand); Marionette (Easton) Tarantella (Byng). **1.0,** Comedy Duets: Crystal Gazing; Afloat; Moonshine; Fun on the 'Phone; The Police Station; Happy Days; In the Trenches. **1.30,** Banjo Solos: Boys of the Loch; Teetotalers; The Buffoon; Mullingar Races; Wexford Lassies; Fashionette; Cracker Jack; Darktown Dandies; Flapperette; Snatches of Song. **2.0,** Light Music. I've gone and lost my Little Yo Yo; I do like to see a Game of Football; The Gag Song; Sing a New Song; Pagan Moon; The Old Kitchen Kettle; Leave the Rest to old Man Moon; At Eventide; Speedway Sam; The Sun has got his Hat On; Dance of the Cockoos; Singing in the Moonlight; When the Band goes marching By; Paradise; It's that extra little something; Strangers. **2.57 a.m.,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW.: **CASSEL, 245.9 metres;** and **TRIER, 259.3 metres.**—**5.25 p.m.,** Talk by Hermann Kesser: Ferdinand Hodler. **5.50,** Time, Programme Announcements, Weather, and Exchange. **6.5,** Workers' Camp—a Radio Sequence (Paul Laven). **7.0,** See **Stuttgart. 8.0,** Germany, the Land of Work—a Radio Sequence (H. W. Goltz). **9.0,** Time, News, Weather, and Sports Notes. **9.45,** Serenade from **Munich. 11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse); **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.**—**6.5 p.m.,** Reading. **6.25,** Weather. **6.30,** Recital on Two Pianofortes by Emmi Knoche and Franz Henking: Rondo, Op. 73; Triumphal March, Op. 91 (Gorin); Andalusian Dance, Ritmo (Manuel Infante); Jazz for Two Pianofortes (Mittmann). **7.0,** High German and Low German Humour—Literary and Musical Programme comparing the Humour of Olden and Modern Times. **9.0,** Time, Weather, and Announcements. **9.20,** Topical Talk. **9.30,** Concert, relayed from Café Wallhof. In the interval at **9.50,** Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW; and **DANZIG, 453.2 metres.**—**12.5 to 1.30 p.m.,** Gramophone Concert: Part I Classical Fantasias: Tannhäuser (Wagner); Schubertiana (Melichar); Offenbachiana (Daehlitz); Part II Operetta Fantasias; Johann Strauss Operetta Potpourri (Schlögel); Melodies (Eysler); Eva (Lehar); Der liebe Augustin (Fall); Im Reiche des Indra (Flotow); In an interval at **12.20,** News. **2.0,** Exchange and Market Prices. **2.30,** Programme for Children. **3.0,** Concert by the Little Orag Orchestra, conducted by Eugen Wilcken: Overture, Faust (Spohr); Suite No. 3 (de Micheli); Czardas No. 9 (Michiels); Selection from Coppélia (Delibes); Overture, Lachendes Leben (Dust); Selection from Gasparone (Millöcker); Waltz, Roses and Marguerites (Waldteufel); Potpourri of Marches, Die Wache zieht auf (Kochmann). In the interval at **3.45** (approx.), Talk on Richard Zoozmann on his Sixtieth Birthday. **4.30,** Review of Books. **4.50,** Talk: Travel Reminiscences of the West Indian Archipelago. **5.15,** Market Prices. **5.20,** Ice Report. **5.25** (from **Danzig**), Siberia—A Report by a Danzig Prisoner of War. **5.50,** Talk: Memorable Days of the Week. **6.0,** Variety Programme by the Little Orag Orchestra, conducted by Eugen Wilcken, Else Kochhann and Max Kuttner. **6.55,** First General News. **7.0,** See **Langenberg. 9.0,** Weather and News.

HILVERSUM

Announced **HUIZEN; 296.1 metres;** 20 kW. (7 kW up to **4.40 p.m.**).—Programme of the Christian Radio Society (N.C.R.V.). **11.10 a.m.,** Light Music on Gramophone Records. **11.40,** Police Notes. **11.55,** Popular Music on Gramophone Records. **12.10 p.m.,** Organ Recital by Jan Zwart. **1.40,** Programme for Schools. **2.15,** Light Music on Gramophone Records. **2.25,** Talk for Women. **2.55,** Dress-making Lesson. **3.10,** Millinery Lesson. **3.25 to 3.40,** Interval. **3.40,** Bible Reading, followed by Recital of Sacred Music by M. J. Smit Duyzentkunst (Baritone) and M. H. Smit Duyzentkunst (Organ). **4.40,** Light Music on Gramophone Records. **4.55,** Concert of Sacred Music by J. de Heer (Songs) and W. Verver (Violin). **5.55,** Talk. **6.10,** The Letter Box. **7.10,** Police Notes. **7.25,** Religious Information. **7.40,** Concert by the Orpheus Male Voice Choir, conducted by P. van de Putten, and the Sursum Corda Orchestra, conducted by M. Dielen. Choir: Praise ye the Lord; Entr'acte and Minuet from L'Arlésienne Suite No. II (Bizet); Overture, Orpheus in the Underworld (Offenbach); Selection from Aïda (Verdi-Bielen); Choir: (a) The Day of Trial (Verhey), (b) Jerusalem (Ohman). **8.40,** Talk. **9.10,** Concert (contd.): Les martyrs aux Arènes (L. de Rillé); Goodnight (Roeske); Choir and Orchestra: To Peace (Browers); Overture, Light Cavalry (Suppé-Biffans); Aufzug der Stadtwache (Jessel-Bielen); Selection from Faust (Gounod-Lucas); Hymn (Fauré-Bielen). In the interval at **9.40,** News. **10.25,** Light Music on Gramophone Records. **11.10** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres;** 8.5 kW. **11.40 a.m.** till Close Down, Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.40,** Time Signal. **11.41,** Concert by Kovacs Lajos and his Dance Band, with Songs by Bob Scholte. **12.40 p.m.,** Popular Music on Gramophone Records. **1.10,** Kovacs Lajos and his Band. **2.10,** Talk. **2.40,** Popular Music on Gramophone Records. **3.40,** Pianoforte Recital by Ivan Engel: Choral (Bach); Prelude (Handel); Sonatine, Op. 110 (Beethoven); Allegro barbaro (Bartok). **4.10,** Talk: Hot Jazz, with Gramophone Illustrations. **5.10,** Organ Recital by Pierre Palla, with Boris Lensky (Violin) and Soprano Solos by Grethe Weijnschenk-Hogenbirk. **6.10,** Talk on Books. **6.40,** Organ Recital (contd.). **7.10,** Talk. **7.40,** Time, Weather, and News. **7.45,** Concert by the Wireless Orchestra, conducted by Nico Treep; Soloist, Franz Baumann (Songs): March, The Diplomat (Sousa); Grieg Potpourri (Urbach); Songs, (a) Maria della Salute (Baumann-Ailbout), (b) La Mattinata (Leoncavallo), (c) Sag ja! (Buchhorn-Bader); Valse des blondes (Ganne); Songs, (a) Ich suche Liebe (Zitzwitz-Bader), (b) So im Vorübergeh'n (Baumann-Redl), (c) Du bist so lieb, kleine Frau (Malkowsky-Bader); Overture, The Gipsy Baron (Joh. Strauss); Waltz from Faust (Gounod); Songs, (a) La Paloma (Yradier), (b) Eine Mütze auf dem Schädel (Buchhorn-Bader), (c) Und Bonn (Buchhorn-Redl); Türkische Scharwache (Michaelis); Elegy (Ketelbey); Songs, (a) Student in Heidelberg (Lob), (b) Student sein (Buchhorn-Lob), (c) Weit ist der Weg (Baumann-Bader); Bizet Potpourri. In the interval at **8.40,** Talk. **10.10,** Concert by the Tuschinski Salon Orchestra, conducted by Max Tak. **10.40,** News Bulletin. **10.50,** Concert (contd.). **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.0 p.m.,** History Talk. **6.15,** Announcements and Popular Music on Gramophone Records. **6.25,** Upper Silesian Fire Brigade Report. **6.30 to 9.5,** See **Warsaw. 9.5,** Dance Music and Light Music from the Hotel Monopole. In the interval, Weather Report from **Warsaw.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres; 40 kW.; and **HELSINKI, 368.1 metres.**—**5.50 p.m.,** Pianoforte Sonata in F Minor, Op. 57 (Beethoven). **6.20,** Recitations, relayed from **Tampere (560 metres). 6.40,** Request Concert by the Radio Orchestra.

LANGENBERG

473 metres; 60 kW.—**12 Noon,** Concert by the Station Orchestra, conducted by Eysoldt: March, Deutsches Blut (Wollny); Overture, The Golden Cross (Brüll); Auf der alten Burg (Dvorák); Bacchanale (Dvorák); Selection from The Flying Dutchman (Wagner); The Sixth Hungarian Rhapsody (Liszt); Pantomime (Friml); Cradle Song (Culotta); Selection from The Tales of Hoffmann (Offenbach). In an interval at **1.0 p.m.,** News. **1.30,** Meat Market Prices. **2.30,** Exchange and Time Signal. **2.50,** Programme for Young People. **3.20,** Tales for Young People. **4.0,** Concert by the Chamber Orchestra, conducted by Spitz. Soloists: Kläre Hansen (Soprano) and Leonardo Aramesco (Tenor): Waltz, Tales from The Vienna Woods (Joh. Strauss); Tenor Solos: (a) Ich muss wieder einmal in Grinzing sein (Benatzky), (b) Im Prater blüht wieder die Bäume (Stolz); Aquarellen-Walzer (Jos. Strauss); Soprano Solo: Du sollst der Kaiser meiner Seele sein (Stolz); Radetzky Marsch (Joh. Strauss); Hoch und Deutschmeistermarsch (Ertl); Tenor Solos: Vienna, City of my Dreams (Sieczynsky); Waltz, Gold and Silver (Lehár); The Blue Danube (Strauss). **5.15,** Talk for Parents: Do you know your Child? **5.25,** Talk: Christian Theodor Weinlig—Richard Wagner's Teacher. **5.45,** Weather, Time, Exchange, and Sports Notes. **6.0,** Talk for Women: The First School Year. **6.20,** Reading of Unpublished Poems (Wilhelm Luetjens). **6.30,** Technical Talk. **6.55,** First General News. **7.0,** Die Stadt—Die Land (From Town and Country)—A Sequence of Poems, Prose, Reading, and Gramophone Records, followed by Programme of West German Folk Music. **9.5,** News and Sports Notes. **9.25,** Programme of Songs and Poems. **9.50,** Serenade and Dance Music. **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN, 319 metres.**—**11.5 a.m.,** Concert by the Pfeltzsch-Marko Orchestra. In an interval at **12.0 Noon,** News, Weather, Snow Report and Time. After the Concert, Exchange. **1.0,** Art and Film Notes. **1.15,** Talk for the Twenty-Fifth Anniversary of the Death of Edmondo de Amicis. **1.30,** Programme for the Unemployed. **2.10,** Talk for Women on Sub-letting. **2.35,** Economic Notes. **3.0,** Gramophone Concert of Popular Music. **4.30,** Weather and Time. **4.50,** Economic Notes. **5.0,** Educational Talk. **5.30,** Talk: A Thousand Years of German Literature—the Reformation Period. **5.50,** Programme to be announced. **6.0,** Zither Recital by Franz Schoula. **6.30,** People and their Callings—the Ganger. **7.0,** And Jean Nicot was Victorious—an Amusing Dispute about Smoking (Siegfried Wisch). **7.45,** Concert by the Symphony Orchestra, conducted by Carl Schuricht. Soloists: Ria Ginster (Soprano) and Friedbert Sammler (Harpsichord). Motet for Soprano and Orchestra, Exsultate jubilate (Mozart); Three Chinese Songs from Bethge's Chinesische Flöte (Braunfels); Symphonic Poem, I Pini di Roma (Respighi). **9.5,** News Bulletin. **9.15,** (approx.), Concert by the Emdé Orchestra. Overture, Der Erlenhügel (Kuhlau); Waltz, Traumideale (Fucik); Selection from The Merry Widow (Lehár); Mavokkanische Patrouille (Jessel); Mazurka (Glinka); Die fixe Donaunixe (Lincke); March, Im Zigeunerlager (Oscheit); Erstes Begegnen (Becker); Potpourri, Grüsse aus Alt-Wien (Geschwandter); Stolzenfels am Rhein (Meissler); Träumende See (Eilenberg); March, Mein Regiment (Blankenburg). **11.0** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

574.7 metres; 7 kW.—**6.0 p.m.,** Serbo-Croatian Lesson. **6.30,** Talk on Hygiene. **7.0,** Concert of Chamber Music. **8.0,** Concert relayed from the Café Zvezda. **9.15,** Time and News.

LWOW

381 metres; 16 kW.—**6.30 p.m.,** See **Warsaw. 9.0,** Talk: Women in Lwow. **9.15,** Relay of Foreign Stations. **9.55,** See **Warsaw. 10.30** (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—**7.3 p.m.,** Radio Gazette for Lyons and the South-East. **8.30,** Concert by the Vandelle String Quartet. Apothéose de Lulli (Couperin); Three Pieces for String Quartet (Stravinsky); String Quartet (Prokofiev). News after the Programme.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—**10.30 p.m.,** Variety Concert. **10.45,** Radio Chronicle. **11.0,** Variety Concert (contd.). **11.35,** Sports and Bull-fighting Notes. **11.55,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO; Call EAJ7, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, and Request Gramophone Records. **8.15,** News Bulletin. **8.30** (approx.), Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**5.30 p.m.,** German Transmission: Reading and Talk. **6.0,** See **Prague. 6.25,** See **Brno. 6.40,** Country Band Concert, from **Radvanice. 7.10,** See **Prague. 7.30,** Concert by the Station Orchestra, conducted by B. Tvrdy: Overture, Maximilian Robespierre (Litolf); Lyric Suite, Op. 54 (Grieg); Polichinelle (Provaznik); Spanish Dance (Kinkl); Waltz-Intermezzo (Smetek); Polka (Tichy); Spanish March (Gyldmark). **8.25,** See **Prague. 9.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**4.30 p.m.,** Literary Programme. **5.30,** Symphony Concert, relayed from the Conservatoire. **8.0,** Talk in English: The Fiftieth Anniversary of the Death of Karl Marx.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg and Kaiserslautern, 560 metres,** and **Nürnberg, 239 metres.**—**3.0 p.m.,** Song Recital by Fanny Lehner and Luise Pflüger (Sopranos) and Sergei Gagarin (Baritone). Four Songs for Soprano (Max Reger): (a) Waldeinsamkeit, (b) Des Kindes Gebet, (c) Schmiedelkätzchen, (d) Mein Schätzelein; Old Italian Arias and Russian Songs for Baritone; Six Songs for Soprano (Amende): (a) Frühlingstag, (b) Die Hände, (c) Angleichung, (d) Herbstbeginn, (e) Abschied, (f) Frühling. **3.40,** A Review of the Winter's Weather. **4.0,** See **Langenberg. 5.15,** Talk: The Motor Car: Its Origin and Development. **5.35,** Talk: The Memorable Expedition to the Kalahari Desert (March, 1906). **5.55,** Introduction to the following Transmission. **6.5,** Alessandro Stradella—Romantic Opera in Three Acts (Flotow), relayed from the National Theatre. In an interval, Agricultural Notes. **8.30,** Die Puppenfee—Ballet (Bayer), relayed from the National Theatre. **9.20,** Time, Weather, News and Sports Notes. **9.45,** Serenade, conducted by Erich Kloss. **11.0** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres;** and **Rjukan, 447.1 metres.**—**4.0 p.m.,** Concert of Chamber Music by the Station Ensemble. **5.0,** German Lesson. **5.30,** Theatre Notes. **6.0,** Announcements, Weather and News. **6.30,** Geological Talk, relayed from **Bergen (364 metres). 7.0,** Time Signal. **7.1,** Dramatic Programme. **7.45,** Violin Recital, by Mme. Kaila Mitzel, relayed from the Logen Hall. **8.40,** Weather and News. **9.0,** Topical Talk. **9.15,** Political Review.

OSTERSUND.—See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—**7.0 p.m.,** Dopolavoro Notes, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. **7.20,** Popular Music on Gramophone Records. In an interval at **7.30,** Time and Announcements. **7.45,** Concert of Chamber Music. Soloists: Olga Niestro Furno (Pianoforte), Antonio Micozzi (Clarinet), A. Ruggeri ('Cello). Pianoforte Solos (Chopin): (a) Polonaise, (b) Waltz, Rhapsody for Clarinet with Piano-

MARCH 13th MONDAY *continued*

forte Accompaniment (Debussy); Concerto for 'Cello with Pianoforte Accompaniment (Saint-Saëns); Rondo for Clarinet with Pianoforte Accompaniment (Bonnard); Songs: (a) Aria (Ferro), (b) La filense (Dunkler); Pianoforte Solo: Pictures from an Exhibition (Mussorgsky). After the Concert, Light Music on Gramophone Records. 9.55, News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.,** Le Journal Parlé. **7.20,** Weather Report. **7.30,** Operetta Programme: Part I—Selection from Les Saltimbanques and Hans, the Flute Player (Gaine); Part II—Selection from Chonchette and Le Sire de Vergy (Terrasse). **8.30,** Popular Programme. **9.0** (approx.). Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Hot Jazz on Gramophone Records. **7.30,** Gramophone Concert of Light Music. **8.0,** Talk by Dr. Ombredane. **8.5,** Motoring Notes. **8.15,** Interval. **8.30,** Sponsored Concerts. **10.40,** News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW. **6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Concert by the Radio Paris Orchestra: Overture, Gli, Orazii e curiazii (Cimarosa); Selection from Don Carlos (Verdi); Siegfried Idyll (Wagner); Selection from The Huguenots (Meyerbeer); Ballet Music from William Tell (Rossini). **1.0 p.m.,** Exchange, News and Weather. **1.5,** Pianoforte Recital by Lydie Demirgian: Chaconne (Vitali); Minuet (Porpora); Coronach (Barratt); La plus que lente (Debussy); Two Commentaries on Ancient Themes (Nin); Dance from La Vida breve (Falla). **1.30,** Exchange. **1.35,** Orchestral Concert (contd.): Alsatian Dances (Levadé); Suite bergamasque (Debussy). **3.45,** Exchange and Market Prices. **6.10,** Agriculculture Talk. **6.30,** Elementary English Lesson. **6.50,** Film Review. **7.5,** Review of New Books. **7.20,** Concert by the Radio Paris Orchestra: Overture, The Cunning Peasant (Dvorák); Berceuse (Defosse); Suite pittoresque (Fourdrain). **7.45,** Commercial Prices and News. **7.50,** Gardening Talk. **8.0,** La Dame Blanche (The White Lady) Opéra-Comique (Boieldieu). In the intervals at **8.30,** News, Sports Notes, and Weather, at **8.40,** Review by Reboux, and at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.,** Work-a-day Thoughts. **9.5,** Business News. **9.15,** Programme to be announced. **9.30,** Weather Report. **9.32,** Market Report. **9.45,** Blue Ridge Buddies. **9.57,** David Lawrence Dispatch. **9.58,** Programme Announcements. **10.0,** Programme to be announced. **10.30,** The Singing Lady, from **New York.** **10.45,** Little Orphan Annie. **11.0,** Booth Tarkington's Maude and Cousin Bill, from **New York.** **11.15,** Time Signal. **11.16,** Temperature Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reder. **11.27,** Strange Facts. **11.29,** Weather Report. **11.30,** KDKA Orchestra. **11.45 to 3.30 a.m. (Tuesday), New York** Relay. **11.45,** To-day's News by Lowell Thomas. **12.0 Midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m.,** Ta-tyeast Jesters. **12.30,** Five Star Theatre—Marx Brothers. **1.0,** Cliquot Club Eskimos. **1.30,** Time Signal and Don Carney—A Talk for Dog Lovers. **1.45,** Phillips Lord in The Country Doctor. **2.0,** Sinclair Minstrels. **2.30,** Jack Frost Melody Moments. **3.0,** The Sizzlers. **3.15,** Vic and Sade. **3.30,** Bridge School of the Air, by E. Hall Downes. **3.45,** Samuel Di Primio (Tenor), and Bradley Kincaid. **4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.13,** KDKA Artist Bulletin. **4.15,** Press Last Minute News. **4.20,** Smith Ballew and his Orchestra. **4.58,** KDKA Artist Bulletin. **5.0,** Hotel Bismarck Orchestra, from **New York.** **5.30,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

POZNAN

335 metres; 1.9 kW. **6.5 p.m.,** Miscellaneous Items and Announcements. **6.28,** Time Signal. **6.30,** See **Warsaw.** In the intervals, Amusement Guide and Announcements. **9.0,** Time Signal and Police Notes.

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.,** See **Bratislava.** **4.10,** Talk on the Use of Spectacles. **4.20,** Talk. **4.30,** Programme for Children. **4.50,** Variety Music on Gramophone Records. **5.5,** Agricultural Report. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission: Talk: Karl Hanel, a German Painter. **6.0,** Chimes. **6.1,** News. **6.10,** English Conversation. **6.25,** Talk; Karl Marx and his Work. **6.40,** Talk on the following Transmission. **6.45,** Concert by the Police Choral Society. **7.10,** Before the Tribunal—One-Act Comedy (Homola) after a Story by Herrmann. **7.30,** See **Moravská-Ostrava.** In the interval at **8.0,** Time Signal. **8.25,** Talk on the following Transmission. **8.35,** Sonatas by the Bach Family—Pianoforte Recital by Jan Herman: Sonata in B (W. F. Bach); Sonatinas (P. E. Bach); Sonata in E Flat (P. E. Bach). **9.0,** Time Signal. **9.1,** News. **9.15,** Talk in English by Miss Rainier: The Development of Modern English Drama. **9.30** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE. 680 metres,** and **GENEVA, 760 metres.**—**5.30 p.m.** (from **Lausanne**), German Lesson. **6.0** (from **Lausanne**), Weather Forecast, News Bulletin and Announcements. **6.30,** Lesson for Carpenters. **7.0** (from **Geneva**). Talk: The Work of the League of Nations. **7.20** (from **Lausanne**), Introductory Talk to the following Transmission. **7.30** (from **Lausanne**), Symphony Concert by the Station Orchestra, conducted by E. Ansermet. Soloist: Mme. Conchita Supervia (Songs). Symphony in B Flat, No. 8 (Haydn); Air from The Italian Girl in Algiers (Rossini); Ballet for Contralto and Orchestra, El Amor Brujo (Falla); Spanish Melodies for Contralto and Orchestra (Nin); Rhapsody España (Chabrier). In an interval at **8.10** (approx.), News and Weather Report. **9.15** (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—**8.30 p.m.,** Weather Report. **8.40,** Musical Programme and Announcements. **9.0,** Chimes. **9.2,** News Bulletin. **9.30,** Reading. **10.0,** Popular Concert by the Station Quartet with Songs.

RIGA

525 metres; 15 kW.—**5.40 p.m.,** English Lesson. **6.10,** Weather Report. **6.15,** Emilis Darzins Concert for Choir, Pianoforte, Baritone and Soprano, with Address by Jaz. Wihtols. **7.10,** News. **7.30,** Orchestral Concert of Latvian Music: Dramatic Overture (Wihtols); Ballade (Kalnins); Popular Latvian Songs. **8.0,** Weather and News. **8.15,** Orchestral Concert of French Music: Overture, Fra Diavolo (Auber); Suite No. 1, from L'Arlésienne (Bizet); Selection from Samson and Delilah (Saint-Saëns); Danse macabre (Saint-Saëns); Overture, Phèdre (Massenet). **9.15** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres,** and **2RO, 25.4 metres.**—**6.45 a.m.,** Gymnastics. **7.15 to 7.30,** Giornale Radio and Announcements. **11.30,** Weather and Light Music on Gramophone Records. **12.0 Noon,** Time and Announcements. **12.2 to 1.15 p.m.,** Concert from **Turin.** In the interval at **12.30,** Giornale Radio and Exchange. **3.45,** Children's Radio Review. **4.10,** Announcements. **4.15,** Exchange and Giornale Radio. **4.30,** Concert from the Royal Philharmonic Academy. **6.0 (Naples),** Shipping and Sports Notes. **6.10,** Agricultural and Dopolavoro Notes. **6.20,** Giornale Radio. **7.0,** Time, Announcements and Light Music on Gramophone Records. **7.30,** Sports Notes, Tourist Report and Gramophone Records (contd.). **8.0,** See **Turin.** **9.0 (Naples),** Talk. **9.15,** Concert of Light Music. Napule canta (de Curtis); Arrivederci Mimi (Bonavolontà); Felicità lontana (Cannio); Mezzanotte (Staffelli); Spanish Duet, Tristezza gaucha (Valdes); Serenata andalusa (Carducci); Ombra e luce (Nissim); Canta Siviglia (Fiasconaro); Te si scurdate 'e Napule (Nardella); Riflessi di Spagna (Valdes); Trio, Come ti lusinghi (Anepeta); A rezza (Staffelli); Orchestral Music Relay. **9.55** (approx.), News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**7.30 to 8.15 p.m., New York** Relay. **7.30,** Revolving Stage. **8.0,** Talk. **8.15,** Antoinette Halstead (Contralto). **12 Midnight,** Musical Programme. **12.15 a.m. (Tuesday),** Stock Report. **12.30,** The Upstaters—Male Quartet. **12.45,** The Goldbergs—Comedy Sketch. **1.0 to 2.20, New York** Relay. **1.0,** Sooneyland Sketches. **1.30,** Voice of Firestone. **2.0,** A. & P. Gypsies. **2.30,** Buick Programme—Paul Whiteman's Orchestra.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER; 459 metres; 60 kW.; **BASLE, 244.1 metres;** and **BERNE, 245.9 metres.**—**11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather Report and News Bulletin. **11.40** (from **Basle**), Variety Concert. **12.35 to 12.45 p.m.** (approx.), Weather and Exchange. **2.30** (from **Basle**), Light Music. **3.30** (from **Zürich**), Concert by the Small Station Orchestra. **4.0** (from **Zürich**), Popular Music on Gramophone Records. **4.30 to 4.35,** Weather Forecast. **5.30** (from **Zürich**), Philosophical Talk: Leisure Hours. **6.0,** Time Signal and Weather Forecast. **6.15** (from **Zürich**), English Lesson. **7.0** (from **Zürich**), Debussy and Wolf Song Recital by Berthe de Vigier (Soprano) and the Station Orchestra, conducted by Hermann Hofmann. **7.45** (approx.) (from **Zürich**), Wagner Concert by the Augmented Station Orchestra, conducted by Hofmann. **8.30,** Weather and News. **8.40** (from **Zürich**), Dance Music by the Radio Orchestra, with Gramophone Records in the intervals. **9.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.**—**3.45 p.m.,** Shorthand Lesson. **4.5,** Accordion Music. **4.30,** Reading. **5.0,** Popular Music on Gramophone Records. **5.55,** Parliamentary Report. **6.30,** Microphone Report. **7.0,** Prince Igor—Opera (Borodin), relayed from the Opera House. **10.0** (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW. **11.30 a.m.,** Variety Music on Gramophone Records. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Light Music on Gramophone Records. **2.0 to 5.0,** Interval. **5.0,** Jazz Music, conducted by Roskam: Pasodoble, Manuela del Rio (Lucchesi); Foxtrot, How can you say No? (Dubin-Kahal-Burke); Foxtrot, I'm makin' Hay in the Moonlight (Seymour-Greer); Waltz, Pal of my Dreams (Gilbert); Foxtrot Kennedy); Foxtrot, Crazy Stomp (Allouche); Man kann sein Herz nur einmal verschenken (Buder); Foxtrot, My sunny Monterey (Gilbert Nicholls); Slow Foxtrot, The Echo of a Song (Mendoza); Waltz, La rose bleue (Aubry); Foxtrot, Sugar (Meyer); Slow Foxtrot, Starlight (Petkere); Tango, Pobre Senorita (d'Achiardi); Foxtrot, Desert Lover (Noël Gay); Rumba, Cuban Moon (Parish-Warshauer-Sprigats); Waltz, Poesia (Appollonio); Pasodoble, Querida Mia (Borsatti). **6.0,** Film Notes. **6.15,** Talk in French: Alsace in the French Novel. **6.30,** Orchestral Concert, conducted by M. de Villers, Part I, Music by Phillippe Gaubert: Ballet Music from Naïla; Divertissement Grecque for Two Flutes and Orchestra; Invocation Berceuse Orientale; Barcarolle; Waltz Scherzo; Berceuse for Violin and Orchestra; Four Sketches: (a) Extase, (b) Voiles blanches, (c) Une classe au loin, (d) Là-bas, très loin, sur la mer. **7.30,** Time and News. **7.45,** Orchestral Concert (contd.): Part II: Prelude and Dance from Das Pensionat (Suppé); Selection from La Gioconda (Ponchielli); Suite gaie (Gabriel-Marie). **8.20,** Lottery Results. **8.30,** Song Recital by Lotte Lehmann, relayed from the Palais des Fêtes: Songs (Brahms): (a) Von ewiger Liebe, (b) Botschaft, (c) Vergebliches Ständchen, (d) Der Schmied; Songs (Schubert): (a) An Sylvia, (b) An die Musik, (c) Der Tod und das Mädchen; Songs (Schumann): (a) Der Nussbaum, (b) Ich grolle nicht, (c) Widmung, (d) Aufträge; Songs (R. Strauss): (a) Allerseelen, (b) Traum durch die Dämmerung, (c) Wiegenlied, (d) Zueignung. **10.30** (approx.). Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.**—**12.30 p.m.,** Concert from **Langenberg.** **1.0,** Musical Programme arranged by the Post Office. **1.15** (from **Karlsruhe**), Musical Programme arranged by the Post Office. **1.30,** Spanish Lesson. **2.0,** English Lesson for Beginners. **2.30 to 3.30,** Interval. **3.30,** Talk by Alfred Lehmann. **4.0,** See **Langenberg.** **5.5,** Light Music on Gramophone Records. **5.15,** Time, Weather, and Agricultural Report. **5.25,** Talk: The Spinning and Weaving Industry. **5.50,** Talk: German Culture and South-East Europe. **6.15,** Time and News. **6.20,** Readings (Ludwig Diehl). **7.0,** Concert of Scandinavian Music by the Stuttgart Philharmonic Orchestra, conducted by Emil Kahn; Soloist, Karin Rossander (Violin): Overture, Nordische Seenfahrt (Gade); Völunds Klage (F. Henriques); Violin Concerto (Sibelius); Sagentraum (Nielsen); Suite from Sigurd Jorsalfar (Grieg). **8.0,** See **Frankfurt.** **9.0,** Time, News, Weather, and Programme Announcements. **9.20,** Chess Lesson. **9.45,** See **Munich.** **11.0** (approx.). Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—**6.0 p.m.,** News Bulletin. **6.15,** Music by an Argentine Orchestra. **6.30,** Eine kleine Nachtmusik (Mozart). **7.0,** Tourist Talk. **7.15,** Racing Results, Market Prices, and News. **7.25,** Local News Bulletin. **7.30,** Operetta Music. Waltz from The Girl in the Taxi (Gilbert); Air from Les-vingt-huit jours de Clairette (Roger); Waltz from The Gipsy Princess (Gilbert). **7.45,** Opera Music. Selection from: (a) William Tell (Rossini), (b) La Juive (Halévy), (c) Faust (Gounod).

8.0, Orchestral Music. **8.15,** Accordion Music. **8.30,** Hunting Melodies. **8.45,** Variety Programme. **9.15,** Symphony Music. **9.30,** Concert. Part I, Sound Film Music. Part II, Violin Solos. **10.0,** Opera Music. Selection from I Pagliacci (Leoncavallo); Air from Romeo and Juliet (Gounod); Prelude to Act I of Le Roi Malgré lui (Chabrier). **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. Gnomenfest (Hagen); Prologue to I Pagliacci (Leoncavallo); Japanese Lantern Dance (Yoshitomo); Le Chant de nos Cloches (Codini); 'Cello Solo: Slav Dance (Kreisler); Raviens (Christine). **11.0,** Popular Concert. **11.30 to 12 Midnight,** Programme in English by the I.B.C., H. K. Hitchcock announcing. **11.30,** I.B.C. Half Hour. Selection from Sunny Side Up; 'Come to me; Blues in my Heart; Selection from On with the Show; Love is like a Song; I believe in you; Selection from Say it with Songs. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Tuesday),** Dance Music. **12.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**4.30 p.m.,** See **Rome.** **6.0,** Variety Music on Gramophone Records. **6.20 to 6.35,** See **Turin.** **6.35,** Light Music from the Café Dante. **7.0** (approx.) till Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.**—**4.30 p.m.,** See **Rome.** **6.0,** Light Music on Gramophone Records. **6.20,** Giornale Radio. **6.30,** Time, Announcements, Tourist Report and Gramophone Records (contd.). **7.0,** Giornale Radio, Weather and Gramophone Records (contd.). **8.0,** Orchestral Concert, conducted by Ugo Tansini. Soloist: Mario Corti (Violin). **9.0,** A Comedy in One Act, followed by Variety Music on Gramophone Records, **10.0,** Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and **50.26 metres** (Evening); 10 kW.—**10.0 to 10.15 a.m.,** Religious Information in Italian. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.**—**4.50 p.m.,** Talk: Feminine Life in the Art of Six Centuries. **5.10,** Books of Reference in Connection with the Week's Talks. **5.15,** Time, Weather, and Programme Announcements. **5.25,** Palestrina—Opera in Three Acts (Pfitzner), relayed from the State Opera House. In an interval at **8.45** (approx.), News, Weather, and Announcements. **9.30,** Dance Music by the Juan Llossas Band, relayed from Hübners Kursalon.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Bugle Call from St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Light Music on Gramophone Records. **11.20,** Weather Forecast. **11.25 to 2.10 p.m.,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.25,** Answers to Correspondence. **2.35,** Wireless Correspondence. **2.50,** Popular Music on Gramophone Records. **3.25,** Elementary French Lesson. **3.40,** Talk: The Unemployment Problem. **4.0,** Pianoforte Recital, by Mme. Padlevska: Preludes: (a) in C Sharp Minor (Chopin), (b) in G Sharp Minor (Chopin), (c) in G Flat (Scriabin), (d) in E Flat Minor (Scriabin), (e) Feuilles mortes (Debussy), (f) in F (Debussy); Nocturnes: (a) in B, Op. 9 (Chopin), (b) in D Flat, Op. 9, for the Left Hand (Scriabin), (c) Nuages (Debussy); Mazurkas: (a) in C Sharp Minor, Op. 30 (Chopin), (b) in F Sharp Minor, Op. 50 (Chopin), (c) in F, Op. 25 (Scriabin), (d) Nos. 17 and 19, Op. 50 (Szymanowsky); Etudes: (a) in C Minor, Op. 10 (Chopin), (b) Three Etudes, Op. 33 (Szymanowski), (c) in C Sharp Minor, Op. 8 (Scriabin). In the interval, Announcements. **4.55,** Programme Announcements. **5.0,** Educational Talk. **5.20,** Current Events. **5.25,** Light Music. **6.0,** Miscellaneous Items. **6.20,** Agricultural Correspondence. **6.30,** Topical Talk. **6.45,** Radio Journal. **7.0,** Das Vielchenmädel—Operetta in Three Acts (Hellmesberger). In the intervals, Sports Notes and Radio Journal. **9.0,** Technical Correspondence. **9.15,** Dance Music. **9.55,** Aviation Weather Report and Police Notes. **10.0,** Dance Music.

WILNO

563 metres; 16 kW.—**6.0 p.m.,** Reading. **6.10,** Miscellaneous Announcements. **6.15,** Sports Notes. **6.30** till Close Down, See **Warsaw.** **10.0** (approx.), Close Down.

ZAGREB

307 metres; 0.75 kW.—**7.0,** Choral Concert. **8.0,** Concert of Opera Music. **9.0,** News Bulletin and Weather Forecast. **9.10,** Dance Music, relayed from the Grill Room. **10.0** (approx.). Close Down.

ZURICH.—See **Schweizerischer Landessender.**

TUESDAY

MARCH THE FOURTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"Castle on the Hill," feature programme by C. Denis Freeman.
LONDON REGIONAL	A "Mainly Sentimental" instrumental concert. Recital of madrigals and part songs.
MIDLAND REGIONAL	"Chinese White," a play by Val Gielgud.
NORTH REGIONAL	Concert from the Houldsworth Hall, Manchester. Choral and orchestral programme from the Town Hall, Leeds.
SCOTTISH REGIONAL	Foundations of Scottish Song, the Gaelic Heritage.

ABROAD

BRUSSELS (No. 2)	8 p.m. Concert from the Salle de Fête, Malines.
HAMBURG	9.40 p.m. The Philharmonic Orchestra, conducted by J. Eibenschutz.
HEILSBERG	7.5 p.m. Opera: "La Tosca" (Puccini), from Danzig.
HILVERSUM	8.40 p.m. Acts 4 and 5 of "The Doctor's Dilemma," by Bernard Shaw.
HUIZEN	7.40 p.m. Sacred concert.
LANGENBERG	7.5 p.m. Comic opera: "Czar and Carpenter" (Lortzing).
ROME	7.45 p.m. Instrumental concert.
STRASBOURG	6.30 p.m. Orchestral concert conducted by M. de Villers.
STUTTGART	6.30 p.m. Opera: "Falstaff" (Verdi), from Frankfurt.

ALGIERS

363.3 metres; 13 kW.—**7.10 p.m.,** Shipping Notes. **7.15,** Weather Forecast and Agricultural Notes. **7.20,** Two Melodies (Duparc): (a) La Vague et la Cloche, (b) Phidylé. **7.30,** Songs from White Horse Inn (Benatzky). **7.55,** News. **8.0,** Time Signal. **8.2,** Talk: The Sahara. **8.15,** Orchestral Music: Overture, The Thieving Magpie (Rossini); Symphonic Variations, Istar (V. d'Indy). **8.30,** News. **8.35,** Light Music. **8.45,** Talk on Algiers. **9.0,** Concert of Oriental Music. **9.30,** News. **9.35,** Concert of Oriental Music (contd.). **9.55,** Wireless Notes. **10.0** (approx.), Close Down.

ATHLONE

413 metres; 60 kW.; and **CORK, 224.4 metres.**—**1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.15,** News and British Market Report. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** Talk for Farmers. **8.0,** The Station Orchestra. **8.20,** Vocal Duets by A. Deale and Miss Preston. **8.35,** The Station Orchestra. **8.55,** Song Recital by Mary Crowley (Mezzo-Soprano). **9.15,** Traditional Fiddle Music by Labheras O Riogain. **9.50,** Original Songs and Sketches by John MacDonagh and Company. **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **7.0,** Request Gramophone Records. **7.30,** Exchange Quotations and Talk on Art. **8.0,** Light Music on Gramophone Records and News Bulletin. **8.15,** Football Results and Gramophone Records (contd.). **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, Market Prices, and Messages to Seamen. **9.10,** An Opera relayed from the Gran Teatro del Liceo. **11.0** (in an interval), News Bulletin.

BARI

269.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes, Tourist Talk, and Dopolavoro Notes. **7.20,** Giornale Radio and Weather. **7.30,** Time and Announcements. **7.35,** Concert by a Plucked String Quartet. Poeta galante (Ancillotti). Selection from Le campane de S. Lucio (Sartori). Descriptive Intermezzo, Danza annamita (Hammel). Selection from Norma (Bellini). **9.15,** Lettera smarrita—One-Act Comedy (Niccodemi). **9.0** (approx.), Concert (contd.). Overture, Patria lontana (Dieus). Prelude to Edmea (Catalani). Second Concerto for Two Mandolines in Three Movements (Pleyel). Martiri al Colosseo (Rilli). Sogno di Java (Vittore). **9.30,** Concert, relayed from the Grand Hotel Moderno. **9.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—**3.45 p.m.,** Orchestral Concert: Perdita (Barbiere); Potpourri from Frühling im Wienerwald (Ascher); Movement from Jubelouder Sommer (Reuschner); Selection from The Little Dutch Girl (Kálmán). **5.55,** Time and Programme Announcements. **6.0,** Popular Music on Gramophone Records. **6.30,** Talk. **7.0,** Quartet in F Minor, Op. 75 (Beethoven). **7.30,** Tosca—Opera in Three Acts (Puccini), on Gramophone Records, with Introductory Talk. **9.30** (approx.), Close Down.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Guessing Competition on Gramophone Records from **Berlin (Witzleben).** **2.0,** Programme for Young People. **2.30,** Weather and Exchange. **2.45,** Reading from Parzival (Albrecht Schaeffer). **3.0,** Talks for Women. **3.30,** See **Leipzig.** **4.10,** Talk: Universities and the Technical Schools. **4.30,** Duet in A, Op. 162, for Violin and Pianoforte (Schubert). **5.0,** Talk: The Independence of Agriculture and Industry in Germany. **5.30,** Illustrated Talk: The same verse to different musical settings—the German Lied. **5.55,** Weather and Announcements. **6.0,** Talk: Greek Drama and the Present Day Man; II—Sophocles. **6.30,** A Poem. **6.55,** Talk on Winter Relief. **7.0,** See **Munich.** **7.35,** Concert of Contemporary Choral Music, with Instrumental accompaniment: Der grimmig Tod—Cantata for Choir, Solo Voice and Instruments (Hermann Erpf); Schicksal—for Voice and Strings (E. L. von Knorr); Verstohlen geht der Mond auf (Walter Rein); Maientanz—for Voice and Instruments (Walter Rein); Lügenlied—for Three Part Choir and Instruments (Paul Hindemith); Kinderreime—for Tenor Voice, Chamber Choir, Pianoforte and Viola (Leo Janacek); Winteraustreiben—for Voice, Choir, and Instruments (Heinrich Spitta). **8.10,** Young Soldiers and Old Beggars—Radio Pictures and Music of the Thirty Years' War. **9.10,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Concert from **Hamburg.** **11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**6.0 p.m.,** Topical Talk. **6.15,** Talk on the Fiftieth Anniversary of the Death of Karl Marx. **6.40,** Announcements. **6.45,** Concert by the Berlin Wireless Orchestra, conducted by Bruno Seidler-Winkler and the Berlin Wireless Chorus, conducted by Maximilian Albrecht. Hero und Leander, Op. 20 (Paul Ertel); Songs for Women's Choir, with accompaniment for two Horns and Harp, Op. 17 (Brahms): (a) Es tönt ein voller Hörnerklang, (b) A Shakespeare Song, (c) Der Gärtner, (d) Gesang auf Fingal; Romantic Ballet Suite (August Reuss); Traumsommernacht—for Women's Choir, Violin, and Harp, Op. 25 (Ludwig Thuille); Norwegian Dances (Grieg). **8.10,** I or We—Programme arranged by Fritz Rüstow. **9.0,** Weather, News, and Sports Notes. **9.40** (approx.), See **Hamburg.** **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—**7.30 p.m.,** News and Exchange. **7.40,** Programme for Women. **7.55,** Lottery Results. **8.0,** Topical Talk. **8.15,** News and Weather. **8.30,** Dramatic Programme.

BRATISLAVA

279 metres; 14 kW.—**5.25 p.m.,** Light Music on Gramophone Records. **5.45,** Slovak Spelling Lesson. **6.0,** See **Prague.** **6.30,** See **Brno.** **7.30,** See **Moravská-Ostrava.** **9.0,** See **Prague.** **10.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.**—**12.10 p.m.,** Gramophone Concert of Sound Film Music. **12.45,** Time, Weather, News, and Exchange. **1.5,** Gramophone Concert of Marches: Radetzky-Marsch (Joh. Strauss); Mir sein die Kaiserjäger (Mühlberger); Slav March (Tchaikovsky); Wedding March from A Midsummer Night's Dream (Mendelssohn); It's a Long Way to Tipperary (Williams); Deutschmeister-Regimentsmarsch (Jurek); Coronation March from The Prophet (Meyerbeer); March of the Priests from Athalie (Mendelssohn); Hohenfriedberger Marsch (arr. Hackenberger). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Programme for Children. **3.10,** Orchestral Concert, conducted by Franz Marszalek: Prelude to Der Weltmeister (Busch); Barcarolle from Casanova (Strauss-Benatzky); Waltz, Flott durchs Leben (Translateur); Serenata cubana (Marsz); Potpourri, Fünf-Uhr-Tee bei Robert Stolz (Dostal); March, Märkische Heide (Lincke). **4.10,** Book Review. **4.30,** Agricultural Prices, followed by Reading (Georg Büchner). **5.0,** Programme to be announced. **5.40,** Talk: Research into Heredity—the most Recent Results. **6.5,** Orchestral Concert, conducted by Franz Marszalek: Parademarsch der Königsjäger (R. Strauss); Meditation (Wendt); Berlioz Potpourri (Homann-Weban); Waltz, Wie einst (Männecke); March Potpourri, Die Wache zieht auf (Kuchmann). In an interval at **6.30,** Weather for Farmers and Market Prices. **7.0,** Orchestral Concert of Light Music: The Hundred and Thirty-third March (Eilenburg); Overture, Die Irrfahrt ums Glück (Suppé); Die vier Temperamente (Wendland); Marionettes' Dance, from Scènes de bal (Glazunov); Hungarian Rhapsody (Liszt). **7.50** (from **Gleiwitz**), Songs by the Upper Silesian Radio Quartet. **8.20,** Orchestral Concert (contd.): Waltz, Die Hydropathen (Gungl); Overture, Frühlingsluft (Jos. Strauss-Reiterer); Intermezzo from Hary Janos (Kodaly); Alexander March (Leonhardt); Karussel (Nick); Selection from Clo-Clo (Lehar). **9.10,** Time, Weather, News, Sports Notes, and Programme Announcements. **9.35,** Political Press Review. **10.0,** Theatre Talk. **10.15,** Concert from **Hamburg.** **11.0** (approx.), Close Down.

BRNO

342 metres; 55 kW.—**5.25 p.m.,** German Transmission: News, Talk and Agricultural Report. **6.0,** See **Prague.** **6.10,** Gramophone Concert of Songs. **6.30,** Military Band Concert. **7.30,** Report from a Biological Laboratory. **8.0,** Dance Music of Fifty Years Ago—Concert by the Station Orchestra, conducted by J. Gotthard. In the interval: Recitations. **9.9,** See **Prague.** **10.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—**12 Noon,** Concert of French Music by the Station Orchestra, conducted by P. Leemans, arranged by the Belgian Catholic Radio Society. Overture, Le roi l'a dit (Delibes). Little Pieces for Quintet (Dubois). Pianoforte Solo: Bourrée fantasque (Chabrier). Waltzes from L'enfant et les sortilèges (Ravel). **12.30 p.m.,** Songs (Daleroze) **12.45,** Fauré Music. Orchestral Suite, Dolly. Fantasia for Flute. Berceuse. **1.0,** Le Journal Parlé. **1.10,** Spanish Music on Gramophone Records. Extracts from El amor brujo (Falla). Fantastic Dances (Turina). **1.30** (in an interval). Songs. **5.0,** Mozart Concert on Gramophone Records. Overture, Idomeneo. Concerto in E Flat for Violin and Orchestra. **5.30,** Programme for Children. **6.5,** Literary Review. **6.15,** Ballet Music from Maroufi (Rabaud) on Gramophone Records. **6.30,** Concert by a Working Girls Society. **7.30,** Report of the Belgian Catholic Radio Society. **7.30,** Theatre Review. **8.0,** L'enfant prodigue. Cantata (Debussy) by the Station Orchestra, conducted by Arthur Meulemans. Soloists: Marguerite Thys, Oscar Jonan (Tenor), and M. Lits (Baritone). **8.45,** Literary Talk. **9.0,** Concert by the Full Orchestra. Soloist: M. Delvenne (Violin). Concerto for Violin and Orchestra (Bruch). Variations on a Theme by Haydn (Brahms). **9.45,** Poems on Gramophone Records. Les animaux malades de la peste (La Fontaine). Le mort et le bûcheron (La Fontaine). Non merci, and Tirade du nez from Cyrano de Bergerac (Rostand). **10.0,** Le Journal Parlé. **10.10,** Request Gramophone Records. Selection from The Tales of Hoffmann (Offenbach). Selection from Lakmé (Delibes). Selection from Les Cloches de Corneville (Planquette). Rêverie du soir (Saint-Saëns). Waltz in A (Brahms). **10.35,** Sonata No. 5 in F Minor (Bach). **10.55,** Christus vincit (Liszt). **11.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Operetta Music on Gramophone Records: Strauss Potpourri; Lotte Lehmann and Richard Tauber: Finale from the Second Act of Die Fledermaus (Joh. Strauss); Selection from The Czarevitch (Lehár); Richard Tauber: Two Songs from The Czarevitch (Lehar); Selection from The Rose of Stamboul (Fall); Richard Tauber: Two Songs from The Land of Smiles (Lehár): (a) You are my Heart's Delight, (b) Patiently Smiling; Richard and Charlotte Tauber: (a) Duet from The Gipsy Baron (Joh. Strauss), (b) Duet from Der Bastelbinder (Lehár); Selection from The Blue Mazurka (Lehár). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans: Oriental March (Ross); Suite, Algerian Nights (Gregh); Chanson d'amour (Hollman); Gramophone Record: Song from The Girl of the Golden West (Puccini); Selection from Mirella (Gounod); Cat and Mouse Melody (Engleman); Speakeasy (Gensler); Torero Ramon (Kostal). **5.0,** Concert of Music dedicated to Children by the Radio Orchestra, conducted by Charles Walpot: Patrouille enfantine (Gaine); Mazurka, Les enfants terribles (Carbin); Selection from the Suite enfantine (Akran); To the Memory of a Baby (Turina); Les enfants (Massenet); Jeux d'enfants (Bizet). **5.45,** Programme for Children. **6.20,** Gramophone Records: Abridged Version of The Merry Wives of Windsor—Opera (Nicolai); Selection from The Gipsy Baron (Joh. Strauss). **7.15,** Talk on International Politics. **7.30,** Tourist Review. **8.0,** Concert, relayed from the Festival Hall, Malines: Marche orientale (Doudiez); Ballet égyptien (Luigini); Recitation; Duo concertant for Trumpet and Trombone (Bandonck); Prelude, Minuet, Entr'acte, and Finale from L'Arlésienne (Bizet); Talk; Prelude to Parsifal (Wagner); Oboe Solos: (a) Concert Pièce (Rietz), (b) Souvenir de Wiesbaden (Verronst); Cello Solos (Popper): (a) Andante, (b) Gavotte); The Blue Danube (Joh. Strauss). **10.0,** Le Journal Parlé. **10.10,** Light Music on Gramophone Records. **11.0** approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—**4.0 p.m.,** Light Music and Romanian Music by the Motoi Orchestra. **5.0,** News and Time Signal. **5.10,** Talk. **5.25,** Concert by the Motoi Orchestra (contd.). **6.0,** Talk: The Historical Development of Romania. **6.40,** Popular Music on Gramophone Records. **7.0,** Song Recital by Mlle. Cretoiu. **7.20,** Concert by the Station Orchestra, conducted by Nottera. Soloist: M. Theodorn (Violin). Overture, Coriolanus (Beethoven). Violin Solos: (a) Air (Fiorillo-Nottara), (b) Sicilienne (Nottara), (c) Idyll (Stefanesco-Nottara). **8.0,** Talk. **8.15,** Concert (contd.), Slovak Suite (Novak). Symphony in D—the London (Haydn). **8.45,** News.

BUDAPEST

550 metres; 18.5 kW.—**4.30 p.m.,** Dance Music. **5.0,** French Lesson. **5.30,** Pianoforte Recital by Lili Herz: Impromptu in E Flat (Schubert); Scherzo in B Flat Minor (Chopin); Andante spianato (Chopin); Polonaise in E Flat (Chopin); Maiden's Prayer; Valse impromptu (Liszt); March and Capriccio (Dohnanyi). **6.15,** Talk. **6.45,** Gramophone Concert: Overture, A Midsummer Night's Dream (Mendelssohn); Venetian Gondola Song (Mendelssohn); Selection from Aïda (Verdi); Dance (Bazzini); Waltz, The Blue Danube (Joh. Strauss); Arlequin (Popper); Ständchen (Brahms); Villanelle (Dell'Acqua); Selection from Rigoletto (Verdi); Song (Füredi); Hungarian Song (Kálmán); Song (Schuster); Hungarian Serenade (Lavotta). **7.45,** Die Sternenfolger—Dramatic Scenes (Georg-Büky). **9.0,** News Bulletin. **9.15** (approx.), Music by the Sándor Bura Cigány Band, relayed from the Hotel Ritz. **11.0** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Time Signal and Chimes from the Town Hall. **11.1,** Concert by Harald Andersen's String Ensemble relayed from the Bellevue Strand Hotel. **2.0,** Symphonic Jazz by Otto Lington and his Jazz Band: The Seal Song (Calloway); Songs from the Sound Film, Odds 777 (Anderse and Folke); St. Louis Blues; Marimba Solo; Hummin' to myself (Magidson); Selection from Landmandslio (Andersen); Blue Jazz (Gifford); Same old Moon (Gifford); Comedy Number (Lington); Reading; Sweet and

Lovely (Arnheim); Trumpet Solo, Plenty of centre (Nicholls); More beautiful than ever (Barris); Melody (Lington); Violin Solo, Wild Cat (Venuti); Melody (Folke); Song from Mr. Cinders (Ellis); Please (Rainger). 4.0, Programme for Children. 4.40, Exchange and Fish Market Prices. 4.50, Talk in English: Basic English. 5.20, German Lesson. 5.50, Weather Report. 6.6, News Bulletin. 6.15, Time Signal. 6.30, Talk. 7.0, Town Hall Chimes. 7.1, The Hansen Family—Humorous Episode (Locher). 7.15, Folk Dances by the Radio Orchestra, conducted by Launy Gröndahl: Norwegian Dance No. 3 in G (Grieg); Hungarian Dance No. 5 in G Minor (Brahms); Mock Morris (Grainger); Spanish Dance, Rondalla aragonesa (Granados); Swedish Dance No. 3 in A Minor (Aulin); North-West Jutland Folk Dances, orchestrated by Gröndahl: Slav Dances No. 5 in A and No. 8 in G Minor, Op. 46 (Dvorák). 8.10, Recital of New Jutland Folk Songs (Aksel Agerby) by Aage Thygesen, accompanied by the Composer. 8.30, A Visit to a Textile Factory. 9.0, News Bulletin. 9.15, Concert of Seventeenth and Eighteenth Century Music by the Radio Orchestra conducted by Launy Gröndahl. Overture, Agrippina (Händel); Concerto grosso in G Minor for two Violins, 'Cello, Strings, and Harpsichord (Corelli); Suite from Le bourgeois Gentilhomme (Lully); Minuet and Rondo from Divertissement, No. 17, in D (Mozart). 10.0, Modern Danish Music by Jens Warny and his Band from Nimb's Restaurant. 11.0, Time Signal and Chimes from the Town Hall.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—12 Noon, Military Music. **12.30 p.m.,** News Bulletin. **12.45,** Light Music on Gramophone Records. **6.0 to 7.0,** Programme in English by the I.B.C. **6.0,** Concert for Worthing Listeners: Musical Comedy: Selection from Wild Violets (Stolz), Song, The White Horse Inn (Benatzky); A Batchelor Gay, from The Maid of the Mountains (Fraser-Simson); Pianoforte Duet from The Cat and the Fiddle (Kern); I give my Heart, from The Dubarry (Millöcker); The Desert Song from The Desert Song (Romberg); Selection from Frederica (Lehár). **6.30,** Concert for Bognor Listeners: Organ Solos: Selection of Popular Melodies, Part I (Tchaikovsky); Chant sans Paroles (Tchaikovsky); Longing (Haydn Wood); Ca c'est Madrid (O'Henry); Broken Dreams (Spitalny); Berceuse de Jocelyn (Godard); Melody in F (Rubinstein); Waltz Selection, Part I. **7.0,** News and Popular Music on Gramophone Records. **7.30,** Radio Gazette. **8.0,** Listeners' Half Hour. **8.15,** Talk. **8.30,** Programme relayed from **Le Havre.** Talk on the Cinema. Music of Many Lands—Concert by the Orchestra of the Hotel Frascati, conducted by M. Sacha Malo; Soloist: Alphonse Renault (Accordion). **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Light Music: Them there Eyes; Always in all Ways; My Sweet Virginia; Dreaming of my Indiana Sweetheart; When I take my Sugar to Tea; I Apologise; Just You, just Me; Moonlight on the Colorado; Must it end like This; Memories of You; River Stay 'Way from my Door; That's Somerset; Why Shouldn't I; The Parade of the Minutes; When you were the Blossom of Buttercup Lane; Koppa-ka-banna. **11.0,** Song Recital: Boots (McCall); The Song of the Flea (Mussorgsky); The Smuggler's Song (Mortimer); Vulcan's Song (Gounod); Glowing Embers (Marsden); The Gay Highway (Drummond); The Admiral's Broom (Bevan); The Yeoman's Wedding (Poniatowsky); Invitation to the Waltz (Weber). **11.30,** Concert by a Light Orchestra: The Bumble Bees' Wedding (Clare); Selection from Die Fledermaus (Joh. Strauss); Columbine (Gerland); Bells across the Meadow (Ketelbey); Waldteufel Memories (Finck); Devotion (Ketelbey). **12 Midnight,** Songs: Cracker Jack (Roser); Exactly like You (Fields); I do like to do things for You (Yellen); My Lover (Yellen); Flapperette (Greer); Swingin' in a Hammock (Seymour); On the Sunnyside of the Street. **12.30, a.m. (Wednesday);** Country Dances: One Step; Hornpipe; Highland Schottische; Irish Jigs and Reels; Reels; Strip the Willow; Strathspeys; Petronella. **1.0,** Variety: Sing Holly, go Whistle, Hey Hey; Call me Darling; Topsy-Turvey; Talk; Marta; Bed; My hiking Girl; The Scotch Italian Christening; Round the Marble Arch. **1.30,** Hawaiian Duets; Hawaiian Waltzes; Alma mia; Sing Something Simple; Goodnight Sweetheart; Bone Festa; Three Little Words; O sole mio; Hawaiian Medley. **2.0,** Dance Music: Loveable; Put that Sun back in the Sky; When we're Alone; Where's Bill Bailey; Sailing on the Robert E. Lee; There's another empty Saddle; Gettin' Sentimental; Can't we Talk it Over; Bahama Mama; Moon; If you were only Mine; Let's put out the Lights and go to sleep; Moonlight, The Danube and You; Mad about the Boy; You're my everything; The Younger Generation. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin**

FRANKFURT

259.3 metres; 17 kW.; and CASSEL, 245.9 metres; and TRIER, 259.3 metres.—4.0 p.m., Concert by the Station Orchestra. Soloist: Lili Rückward (Soprano). Part I.—Overture, Die Zauberharfe (Schubert); Three Songs (Carl Beines); Symphony No. 3 in D (Schubert); Three Songs (Carl Beines). Part II.—Programme of Old Marches. **5.15,** Exchange Quotations. **5.25,** Talk: It moves for all that—Galileo and the Roman Inquisition in 1633. **5.50,** English Lesson. **6.15,** Time. Programme Announcements, Weather, and Exchange. **6.30,** Falstaff—Opera in Three Acts (Verdi), relayed from the Frankfurt Opera House. **9.0,** Time, News, Weather, and Sports Notes. **9.20,** See **Stuttgart. 11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.—6.0 p.m.,** Agricultural Report. **6.25,** Weather. **6.30,** Orchestral Concert conducted by S. Scheffler: March, Germania (Keil); Overture, Euryanthe (Weber); Solveig's Song (Grieg); Waltz, Golden Rain (Waldteufel); Italian Caprice (Tchaikovsky); March, Semper vivum (Larcher); Overture, The Merry Wives of Windsor (Nicolai); Spanish Dance (Moszkowsky); Selection from The Maid of the Black Forest (Jessel). **7.45,** Earth—a Comedy of Life (Schönherr). **9.10,** Time, Weather, Announcements, Sports Notes and Police Report. **9.30,** Topical Talk. **9.40,** Concert by the Philharmonic Orchestra conducted by José Eibenschütz: Overture to a Marionette Play (Gal); Largo (Haydn); Small Comedy Suite (Wunsch); Swedish Rhapsody, Midsommarvaka (Alfven); Potpourri, Offenbachania (Conradi); Overture, Der Wildschütz (Lortzing); Selection from Die Faschingsfee (Kálmán); Waltz, Rathaus-Ballklänge (Joh. Strauss). In an interval at **10.20,** Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW.; and **DANZIG, 453.2 metres.—12.5 to 1.30 p.m.,** Gramophone Concert of Variety Music. In the interval at **12.20,** News. **1.30,** Programme arranged by the Post Office, with Gramophone Records. **2.0,** Exchange and Market Prices. **2.30,** Announcements of the Children's Competition for Musical Improvisations. **3.0,** Klara Hofer reads from her own Works. **3.20,** Concert by the Little Orag Orchestra, conducted by Eugen Wilcken: Overture, Beethoven (Lassen); Ballet Music from La Juive (Halévy); Waltz, Loreley (Rheinklänge (Joh. Strauss); Selection from Si j'étais Roi (Adam); Suite, From Southern Spheres (Fresco). **4.40,** Dr. Faust—Play for Young People (Pascal du Bois-Reymond). **5.15,** Market Prices. **5.20,** Ice Report. **5.30,** Talk for Workers. **6.0,** Shorthand Dictation. **6.25,** Talk on Karl Marx, on his Fiftieth Anniversary of his Death. **6.55,** Weather and News. **7.5,** Tosca—Opera in Three Acts (Puccini), from the Municipal Theatre, Danzig. **9.30** (approx.), Weather, News and Sports Notes.

HILVERSUM

(Announced **HUIZEN**). **296.1 metres;** 20 kW. (7 kW. up to **4.40 p.m.).—11.55 a.m.** till Close Down, Programme of the Christian Radio Society (N.C.R.V.). **11.55,** Concert by a Balalaika Ensemble, conducted by Iwan Schnstow. In the interval, at **12.40 p.m.,** Gramophone Records. **1.40,** Talk. **2.15,** Talk for Women. **3.10,** Dressmaking Lesson. **4.10,** Violin and Pianoforte Recital by F. Hinze and F. Boshart: Sonata in G Minor (Senaillé); Chaconne (Bach); Gramophone Records: Slav Dances (Dvorák-Kreisler); Andante rubato (Dohnanyi); Gipsy Dances (Rachmaninov); Gipsy Airs (Espejo). **5.5,** Concert by the K.R.O. Sextet: March (Maas); Liebeswalzer (Moszkovsky); Music and Roses (von Lindern); Potpourri, Ein Plauderstündchen mit Delibes (Urbach); Der schönste Gedanke (Abraham). **5.40,** Topical Talk. **6.10,** Esperanto Lesson. **6.30,** Sextet Concert (contd.): Potpourri, Für Alle (Dostal); Mach' dir nichts daraus (Benatzky); Goodbye (Tosti); March, Unterm Freiheitsstern (Blankenburg). **6.50,** Talk on Life. **7.10,** Police Notes. **7.25,** Talk. **7.40,** Sacred Concert: Miserere; Meditation on the Passion; Coenantibus illis; Ave Regina Coelorum; Selection from Stabat Mater (Franssen); Tantum ergo. **9.10,** News Bulletin. **9.15,** Song and Pianoforte Recital: La Damoiselle élue (Debussy); Asie (Ravel); Arabesque (Debussy); Two Spanish Dances (Falla); Seven Popular Spanish Songs (Falla); Ballet Music from Carmen (Bizet); Overture, A Carnival in Rome (Joh. Strauss); Selection from Casanova (Joh. Strauss); Selection from Die geschiedene Frau (Fall); Selection from The Mikado (Sullivan). **11.10,** Popular Music on Gramophone Records. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres;** 8.5 kW. **10.10 a.m.** till Close Down, Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **10.10 a.m.,** Violin and Pianoforte Recital by Jo Juda and Jo Goudsmit. **10.40** (in an interval), Talk. **11.40,** Time Signal. **11.41,** Concert by the Wireless Orchestra, conducted by Nico Treep. **1.55 p.m.,** Interval. **2.10,** Light Music on Gramophone Records. **2.40,** Fashion Talk for Women. **3.40,** Light Music on Gramophone Records. **4.10,** Concert by a Children's Choir. **4.40,** Fairy Tales for Children. **5.10,** Talk. **5.40,** Concert of Light Music, by Willy Lewis and his Band. **6.10,** Talk. **6.40,** Concert (contd.). **7.10,** Elementary English Lesson. **7.40,** Time Signal. **7.41,** Weather and News. **7.45,** Concert by the Wireless Orchestra, conducted by Nico Treep: March, Morgenröte (Jessel); Suite No. 1, from L'Arlésienne (Bizet); Tesoro mio (Becucci); Introduction, Waltz and Gallop on Strauss Themes (Morena); Siamesische Wachtparade (Lincke); Witches' Dance (Casadesus); Overture to a French Comedy (Keler-Bela). **8.40,** The Doctor's Dilemma—Acts IV and V (Bernard Shaw). **9.40,** Popular Concert by Kovacs Lajos and his Dance Band. **10.40** (in an interval), News Bulletin. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.0 p.m.,** Talk on Modern Photography. **6.15,** Announcements and Gramophone Records. **6.25,** Sports Notes. **6.30,** Talk on Music, relayed from **Cracow (312.8 metres). 6.45 to 10.0,** See **Warsaw. 10.0,** Dance Music from the Astoria.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres; 40 kW.; and **HELSINKI, 368.1 metres.—6.5 p.m.,** Recitations. **6.30,** Concert by the Radio Orchestra. **7.45,** News in Finnish. **8.0,** News in Sweden.

LANGENBERG

473 metres; 60 kW.—**12 Noon,** Concert, conducted by Wolf: March, Sportgeist (Emert); Rakoczy Overture (Keler-Bela); Selection from Manon (Massenet); Lament (Dvorak); Dance of the Goblins (Dvorak); Romantic Suite (Bullerian); Potpourri, Extravaganzen (Morena); Waltz, Bei uns z'Haus (Strauss). In the interval at **1.0 p.m.,** News Bulletin. **1.30,** Sponsored Programme, with Gramophone Records. **2.30,** Exchange and Time Signal. **2.50,** Programme for Children. **3.20,** Notes on the Broadcasts to Schools. **3.50,** Talk: Geography for Schools. **4.0,** Concert, conducted by Wolf: Festival Overture (Lortzing); Country Dance and Waltz Mazurka, from A Spring Festival (Thomas); Selection from L'Africaine (Meyerbeer), Waltz, Die Werber (Lanner); Sang und Klang aus dem Osten—Fantasia on the Music of Russian Composers (Eberle); Two Pieces (Lindsay-Theiner): (a) Waltz Intermezzo, Blütenzauber, (b) Villany Czardas. **5.15,** Italian Lesson. **5.45,** Weather, Time, Exchange and Sports Notes. **5.55,** Talk on Agriculture. **6.15,** Reading (Stephan Paul Andres). **6.35,** Talk on the Fiftieth Anniversary of the Death of Karl Marx. **7.0,** First General News. **7.5,** Czar and Carpenter—Comic Opera in Three Acts (Lortzing). **9.15,** News, Sports Notes and Silent Night.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN, 319 metres.—12.15 p.m.,** Gramophone Concert: Nirs (Wagner): (a) Prelude to Lohengrin, (b) Overture, The Flying Dutchman, (c) Song from The Valkyries; Trinkspruch (Schmalstich); Die heilige Barke from Alt-China (Niemann); Der Wasserfall (Niemann); Scherzo for Flute and Pianoforte (Thomas); Adagio for 'Cello and Pianoforte (Thomas); Frühlingstraum (Schubert); Drei Wanderer (Hermann); Hülle mich in Liebe ein from Der Studentenprinz (Krausz); Presto from the Divertimento in E Flat (Mozart); Jelängerjelieber and Vergissmeinnicht (Schein); Die Macht der Phyllis (Schein); After the Concert, Exchange. **1.0,** Talk for the Unemployed. **2.35,** Economic Notes. **3.30,** Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber. Overture, Des Teufels Lustschloss (Schubert); Divertimento for Small Orchestra (Dehnert); Waltz (Waldteufel); Ballet, A Tale of the Champagne (Brüll); Scherzo-Caprice (Nedbal). **4.30,** Weather and Time. **4.50,** Economic Notes. **5.5,** Reading for Women. **5.25,** French Lesson. **5.50,** Introduction to the Gewandhaus Concert on the 16th March. **6.0,** Talk on Caligraphy. **6.30,** Concert by the Radio Orchestra, conducted by Theodor Blumer: Selection from Die Fledermaus (Joh. Strauss); Hungarian Suite (Hofmann); Potpourri, Eine Sängerfahrt nach Wien (Silving); Waltz, Blaue Augen—blauer Himmel (Fetras); Overture, Hokuspokus (Leuschner); Ballet Music from William Tell (Rossini); Humorous Potpourri, Im Automaten-Salon (Vollstedt); Rheinischer Sang (Hannemann). **8.15,** Talk on Economic Questions. **8.25,** News. **8.35,** Walter von Molo reads from his own Works. **9.5,** News. **9.15,** Concert by the Dresden String Quartet: Pianoforte Quintet in D Minor (Müller); String Quartet (Roth). **10.45** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

574.7 metres; 7 kW. **6.0 p.m.,** Country Sketches. **6.30,** Talk: Contemporary Heroes. **7.0,** Programme relayed from **Zagreb (307 metres). 9.0,** Time, News and Light Music.

LWOW

381 metres; 16 kW.—**6.45 p.m.,** See **Warsaw. 9.15,** Trio Concert. **9.55,** See **Warsaw. 10.30** (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South-East. **8.30,** Dramatic Programme relayed from **Paris (Ecole Supérieure) (447.1 m.).**

MADRID

ARANJUEZ (EA9), 30.43 metres; 20 kW.—**10.30 p.m.,** Concert. Pasodoble, Oviedo (Marquina). Rondo and Badinerie (Bach). Polonaise (Bach). **10.45,** Radio Chronicle. **11.0,** Concert (contd.). Molinos de viento (Luna and Frutos). **11.40,** Light Music. **12.0 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kw.—**7.0 p.m.,** Chimes, Exchange Quotations, and Request Gramophone Records. **7.15,** Medical Talk. **7.30,** Talk by Joaquin Espana Cantos and Request Gramophone Records (contd.). **8.15,** News Bulletin and Political Review. **8.30 to 9.0,** Interval. **9.0,** Linguaphone English Lesson. **9.30,** Chimes, Time Signal, and Political Review. **9.45 (approx.),** Werther—Opera (Massenet) on Gramophone Records. **11.45,** News Bulletin. **12.0 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by Plichta. **4.10,** See **Prague. 4.50,** See **Brno. 5.0,** Talk: The Humorous Novel. **5.15,** See **Prague. 5.25,** See **Brno. 6.0,** See **Prague. 6.30,** See **Brno. 7.30,** A Sketch. **8.10,** Concert by the Station Orchestra, conducted by Plichta: Potpourri (Urbach); Waltz-Intermezzo (Volkov); Vampire Dance (Smatek); Polka (Tichy); Potpourri, Polonia (Leonold); Old-fashioned Polka (Plichta); Moravian Dance (Balling); March (Dörfler). **9.0,** See **Prague. 10.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**4.30 p.m.,** Concert of Music by Beethoven, Schumann, and Chopin. **5.30,** Symphony Concert, relayed from the Radio Theatre. **8.0,** Talk in French: The Fiftieth Anniversary of the Death of Karl Marx.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres;** and **Nürnberg, 239 metres.—3.45 p.m.,** Concert by the New Munich Symphony Orchestra, conducted by Hellmut Fritz: Festival Overture (Lortzing); Allegretto quasi Andantino (Schubert); Selection from L'Africaine (Meyerbeer); Ochsenmenuett (Haydn); Scandinavian Suite (Juel-Frederiksen); Turkish March (Mozart). **4.45,** A Tour of the Air Safety Exhibition in Munich. **5.15,** Youthful Reminiscences of a Cyclist (Nikolaus von Gagern). **5.35,** Talk: The Law in Popular Sayings. **5.55,** Time, Weather, and Agricultural Notes. **6.5,** Pianoforte Recital of Dances of the Nations: German Dances (Schubert); Minuet (Friedmann); Minuet (Ravel); Mazurka (Liadov); Russian Dance (Isserlis); Spanish Dance (Granados); Romanian Dances (Bartok); Polka from Schwanda the Piper (Weinberger); Waltz from Faust (Gounod-Liszt). **6.35,** Talk: The Island of Celebes, Dutch East Indies. **7.0,** Concert of Upper Bavarian Folk Music: The Alt Munchen Zither Club and Tyrolese Harpists and Yodellers: Münchener Schützenmarsch (Schiffert); Potpourri, Auf der Zwieselalm (Krettner) for Two Harps, Zither Solos; Upper Bavarian Poachers' Songs; March, Freikugeln (Petras). **7.35** (from **Nürnberg**), Concert by Fritz Brückner and his Orchestra: Comedy Overture (Bohn); Waltz, The Secrets of the Adige (Carena); Intermezzo, Queen Helen (Myers); Selection

from Frederica (Lehar); March, Im Fluge der Zeit (Brückner). 8.20, Chamber Music Concert. Hedwig Fassbaender Rohr (Violin) and the Station Orchestra, conducted by Hanns Rohr: Violin Concerto in A Minor (Vivaldi); Violin Concerto in C (Haydn); Violin Concerto in D (Mozart). 9.20, Time, Weather, News, and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres;** and **Rjukan, 447.1 metres.**—4.0 p.m., Orchestral Concert of Popular Music relayed from the Hotel Continental. 5.0, Two Talks for Housewives. 5.45, Mandoline Solos by Rudolf Miros. 6.0, Announcements, Weather, and News. 6.30, English Lesson. 7.0, Time Signal. 7.1, Talk: Karl Marx and the Communist Manifesto. 7.30, Concert by the Station Orchestra, conducted by Hugo Kramm: Sonata in E Minor for Strings (Bach); Symphony in D—the London (Haydn); Carnival Music (Schmidt). 8.40, Weather and News. 9.0, Topical Talk. 9.15, Pianoforte Recital by Edvard Sylou Kreutz: Sonata in E Minor (Grieg); Symphonic Suite (Sylou-Kreutz). 9.45 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—7.0 p.m., Dopolavoro Notes, Tourist Talk, Agricultural Notes, and Giornale Radio. 7.20, Popular Music on Gramophone Records. In an interval at 7.30, Time and Announcements. 7.45, Concert of Theatre Music. In the intervals, Talk and Art Notes. 9.55, News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—Time Signal (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parlé. 7.20, Weather Report. 7.30, Pianoforte Recital of Dances by Marie Antoinette Pradier: Passacaglia (Händel); Sarabande and Bourrée (Bach); Mazurkas, Waltzes and Ecossaises (Chopin). 8.30, Concert by the Firmin Touche Quartet: Quartet in D Minor (Mozart); String Quartet (Ravel).

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—6.45 p.m., Journal Parlé. 7.0, Sponsored Concert with Gramophone Records. 8.0, Film Talk. 8.5, Talk on the Music Hall by Pierre Basquaise. 8.15, Interval. 8.30, Concert of Music by Henri Dupare and Charles Levadé by the Station Symphony Orchestra. 10.30, News.

PARIS

RADIO PARIS; Call CFR; 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Light Music on Gramophone Records. 8.0, Press Review and Weather. 12 Noon, Concert by the Krettly Orchestra: Overture, Haydée (Auber); Selection from The Pearl Fishers (Bizet); Selection from Tutti in Maschera (Pedrotti); Ballet Music from Isoline (Messager); Overture, Les Deux vieilles Gardes (Delibes); Selection from Maruf (Rabaud). 1.0 p.m., Exchange, News, and Weather. 1.5, Concert by the Willaumn Quartet: Second String Quartet (Borodin); Romance in C for Violin (Saint-Saëns). 1.30, Exchange. 1.35, Concert by the Krettly Orchestra (contd.): Serenade (Arteibouceff); Castellanas (Collet); Poetic Scenes (Granados); Overture, Morning, Noon, and Night (Suppé). 2.0, Exchange. 3.45, Exchange and Market Prices. 4.30, Elementary English Lesson. 6.10, Agricultural Talk. 6.30, Advanced English Lesson. 6.50, Theatre Review. 7.5, Talk on Art. 7.20, Concert by the Krettly Orchestra: Little Grey Home in the West (Löhr-Chapelier); Where my Caravan has rested (Löhr-Chapelier); Passepied and Gigue (Pierné); Esquisses (Gaubert); Scherzo-valse (Chabrier). 7.45, Commercial Prices and News, and Anglo-Saxon Press Review. 8.0, Brignol et sa fille—Comedy (Capus). In the interval at 8.30, News and Weather; at 8.40, Review by Zamacois; and at 9.15, Press Review and News. 10.0, The Trout Quintet (Schubert), on Gramophone Records.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—9.0 p.m., Work-a-day Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather Report. 9.31, Market Reports. 9.45, Johnny Muskrat. 9.50, David Lawrence Dispatch. 9.58, Programme Announcements. 10.0, Programme to be announced. 10.15, Adventures of Dr Dolittle, from **New York.** 10.30, The Singing Lady, from **New York.** 10.45, Little Orphan Annie. 11.0, Booth Tarkington's Maude and Cousin Bill, from **New York.** 11.15, Time Signal. 11.16, Weather Report. 11.17, Teaberry Sport Review. 11.22, Press News Reeler. 11.27, Strange Facts. 11.29, Temperature Report. 11.30, KDKA Orchestra. 11.45 to 3.0 a.m. (Wednesday), **New York** Relay. 11.45, To-day's News, by Lowell Thomas. 12.0 Midnight, Pepsodent Amos 'n' Andy. 12.15 a.m., National Advisory Council on Radio in Education—Farm Relief by Prof. Benjamin Shambaugh, University of Iowa, and Senator Peter Norbeck, South Dakota. 12.45, The Townsend Murder Mystery. 1.0, Eno Crime Club. 1.30, Time Signal and Adventures in Health. 1.45, Phillips Lord in The Country Doctor. 2.0, Household Musical Memories. 2.30, Willard Robison's Deep River Orchestra. 3.0, The Tune Detective. 3.15, Vic and Sade, from **New York.** 3.30, Honey Bailey and Orchestra, from **New York.** 3.45, Bradley Kincaid. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.15, Press Last Minute News Flashes. 4.20, Smith Ballew and his Orchestra. 4.58, KDKA Artist Bulletin. 5.0, Cotton Club Orchestra, from **New York.** 5.30, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—3.10 p.m., See **Moravská-Ostrava.** 4.10, Talk on Economics. 4.20, Czech Lesson for Germans and German Lesson for Czechs. 4.50, Variety Music on Gramophone Records. 5.5, Market Prices. 5.15, Talk for Workers: Karl Marx. 5.25, News. 5.30, German Transmission: A Scene from Julius Caesar—Drama (Shakespeare). 6.0, Chimes. 6.1, News Bulletin. 6.10, Shorthand Lesson. 6.30, See **Brno.** In the interval at 8.0, Time Signal. 9.0, Time Signal. 9.1, News. 9.15, Variety Music on Gramophone Records. 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.: **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.**—5.0 p.m. (from **Lausanne**), Medical Talk. 5.30 (from **Geneva**), English Lesson. 6.0 (from **Geneva**), Weather Forecast, News Bulletin, and Announcements. 6.20 (from **Geneva**), Answers to Correspondence. 6.30 (from **Geneva**), Concert of New Gramophone Records. 7.0, Concert by the Station Orchestra. 8.5 (from **Geneva**), The Week's Review. 8.15 (from **Lausanne**), 'Cello Solos by Gérard Hekking. 9.0, News Bulletin and Weather Forecast. 9.10 (from **Geneva**), Talk: The Work of the League of Nations. 9.30 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—8.30 p.m., Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes. 9.2, News Bulletin. 9.30, Reading. 10.0, Pianoforte Solos by Emil Thoroddsen. 10.15, Recitations. 10.35, Violin Concerto in E (Bach), on Gramophone Records.

RIGA

525 metres; 15 kW.—6.5 p.m., Concert of Latvian Music. 7.0, News. 7.20, Song Recital by Zelma Gothards (Soprano). 7.40, Concert of Popular Music. 8.0, Weather and News. 8.30 Dance Music. 9.30 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **NAPLES, 319 metres,** and **2RO, 25.4 metres.**—6.45 a.m., Gymnastics. 7.15 to 7.30 a.m., Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Concert from **Turin.** In the interval at 12.30, Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30 to 5.15, See **Turin.** 6.0 **(Naples),** Shipping and Sports Notes. 6.10, Lesson in Morse. Agricultural Report, and Dopolavoro Notes. 6.20, Giornale Radio. 7.0, Time and Announcements. 7.2, Talk, Saturn. 7.15, Light Music on Gramophone Records. 7.30, Sports Notes and Tourist Report. 7.45 (approx.), Instrumental Concert. Soloists: Arrigo Serato (Violin) and Artalo Satta (Pianoforte). Sonata in A for Violin and Pianoforte (Franck). 8.20 (approx.), Il dono della notte—Play (Carlo Vittorio Dusel). 8.50, Instrumental Concert (contd.). Pianoforte Solo: Chromatic Fantasia and Fugue (Bach). Sonata in C Minor for Violin and Pianoforte (Grieg). Gramophone Records: (a) Larghetto and Allegro from the Concerto grosso in G Minor (Vivaldi), (b) Symphonic Poem (Balakirev-Thamar). 9.55, News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—12 Midnight, General Electric Programme. 12.15 a.m. (Wednesday), Stock Report. 12.30 till Close Down, **New York** Relay. 12.30, Soloist Programme. 12.45, The Goldbergs. 1.0, Blackstone Plantation. 1.30, Wayne King's Orchestra. 2.0, Ben Bernie's Blue Ribbon Orchestra. 2.30, Ed. Wynn and the Fire Chief Orchestra. 3.0, Lucky Strike Hour, followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.: **BASLE, 244.1 metres;** and **BERNE, 245.3 metres.**—11.28 a.m., Time Signal from Neuchâtel Observatory. 11.30, Weather Forecast and News Bulletin. 11.40 (from **Zürich**), Concert of Light Music by the Radio Orchestra. 12.35 to 12.45, Weather Forecast and Exchange. 2.30 (from **Zürich**), Concert by the Small Radio Orchestra. 3.0 (from **Basle**), Wind Instrument Music on Gramophone Records. 3.30 (from **Basle**), Extracts from Operettas, on Gramophone Records. 4.0 (from **Basle**), Dance Music on Gramophone Records. 4.30 to 4.35, Weather Forecast. 5.30 (from **Berne**), Programme for Children. 6.0, Time Signal and Weather Forecast. 6.1 from **Berne**), Notes on the Broadcasts for Schools. 6.15 (from **Berne**), Talk: The Lutheran Religion in the Light of Modern Research. 6.45 (from **Berne**), Introductory Talk to the following Transmission. 7.0 (from **Berne**), Symphony Concert by the Berlin Music Society conducted by Fritz Brun. Soloists: Steffi Geyer (Violin), J. Cron (Tenor), and W. Rössel (Bass). 9.0 (approx.), Weather, News, and Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.**—4.5 p.m., Programme for Children. 4.50, Reading. 4.55, Popular Music on Gramophone Records. 5.55, Talk in German. 6.20, Talk, relayed from **Malmö (231 metres).** 7.0, See **Munich.** 7.35, Literary Review. 8.5, Concert: Gunnar Norrby ('Cello) and Märta af Klintberg (Pianoforte) and Anna Tibell (Songs). Sonata in Old Spanish Style for 'Cello and Pianoforte (Cassado); Songs; 'Cello Solos: (a) Sicilienne (Fauré), (b) Liebesfreud (Kreisler); Songs. 9.0, Concert of Light Music. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—11.30 a.m., Classical Music on Gramophone Records. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Gramophone Concert: Allegretto from Symphony No. 7 (Beethoven); Invitation to the Waltz (Weber); Danse macabre (Saint-Saëns); Daphnis et Chloé (Ravel). 2.0 to 4.45, Interval. 4.45, Talk in French: Paul, the Birthplace of Henry IV. 5.0, Orchestral Concert, conducted by Roskam: Mystérieuse marche (Gillet); Réponse à Manon (Gillet); Because (d'Hardelot); Overture, Isabella (Suppé); Serenade for 'Cello and Small Orchestra (Hollmann); Selection from The Maid of the Black Forest (Jessel); Romance à Manon (Demaret); Esquisses Provençales (Popy); Sylvia, the Rope-dancer (Razigade); March, Les Allobroges (Salabert). 6.0, Talk on History in French. 6.15, Topical Talk in French. 6.30, Orchestral Concert, conducted by Maurice de Villers: Part I: Music by Henri Février. Selection from Monna Vanna; Interlude, Ghismonda; Danse galante, from Agnès; Violin Solo, Doux propos; Symphonic Fragments from Aphrodite. 7.30, Time and News. 7.45, Orchestral Concert (contd.): Part II: March, Hollywood (Léopold); Selection from Eine Nacht in Venedig (Joh. Strauss); Ballet Russe (Luigini); Tarantella Napoli (Mezzacapo). 8.20, Lottery Results. 8.30, Dramatic Programme, relayed from Paris. 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.**—12.15 p.m., Time, News, Weather, Show Report, and Programme Announcements. 12.30, March Potpourri (arr. Kaiser) on Gramophone Records. 1.0, Concert arranged by the Post Office. 1.30, Advanced English Lesson. 2.0 to 3.0, Interval. 3.0, Talk on Flowers. 3.30, Talk for Women. 4.0, See **Frankfurt.** 5.15, Time, Weather, and Agricultural Report. 5.25 (from **Freiburg**), Talk on the German Poet, Klopstock, on the 130th Anniversary of his Death. 5.50, See **Frankfurt.** 6.15, Time and News. 6.30, See **Frankfurt.** 9.0, Time, News, Weather, and Programme Announcements. 9.20, Concert by the Stuttgart Philharmonic Dance Band with Walter Maurer (Tenor). 11.0 (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres, 8 kW.—6.0 p.m., News Bulletin. 6.15, Popular Melodies. 6.30, Literary Talk: A son of Gascony—M. du Barri. 6.50, Songs from Sound Films. 7.0, Instrumental Music: Theme with Four Variations on a Trio (Tchaikovsky); Trio in D Minor (Mendelssohn). 7.15, Racing Results, Market Prices and News. 7.25, Local News Bulletin. 7.30, Music by an Argentine Orchestra. 7.45, Opera Music: Airs from (a) The Pearl Fishers (Bizet), (b) La Basoche (Messager), (c) Lakmé (Delibes). 8.0, Opera Music: Barcarolle, from the Tales of Hoffmann (Offenbach); March from The Mastersingers (Wagner); Polonaise from Boris Godunov (Mussorgsky). 8.15, Accordion Music. 8.30, Music by a Viennese Orchestra. 8.45, Extracts from Veronique-Operetta (Messager). 9.15, Symphony Music: Air from Ramuntcho (Pierné); Waltz No. 2 (Godard); Souvenir (Drdla); Entr'acte from Messidor (Bruneau); Valse du Pas des Fleurs (Delibes); Retreat and Prayer (Kreutzer). 10.0, Opera Music: Airs from (a) The Tales of Hoffmann (Offenbach), (b) Faust (Gounod), (c) Prince Igor (Borodin). 10.15, North African News. 10.30, Concert for Listeners in Morocco: Melody (Löwenthal); Air from Act I of Cavalleria rusticana (Mascagni); Selection from La Bohème (Puccini); Dolorita (Charabon); March from The Prophet (Meyerbeer); Perdita (Cuvelier). 11.0 Recitations. 11.15, Orchestral Music. 11.30 to 12 Midnight, Programme in English by the I.B.C., H. K. Hitchcock announcing. 11.30. I.B.C. Half-Hour. Roamin' for Romance; As you desire me; One Hour with You; Try a Little Tenderness; We will always be Sweethearts; So Ashamed; In the Shade of the Old Apple Tree; Clarinet Marmalade. 11.57, I.B.C. Goodnight Melody. 12 Midnight, Weather and Announcements. 12.35 a.m. (Wednesday), Popular Songs. 12.15, Military Music (approx.), Close Down. 12.30

TRIESTE

247.7 metres; 10 kW.—4.30 to 6.0 p.m., see **Turin.** 6.0, Light Music on Gramophone Records. 6.20 till Close Down, see Turin.

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **MILAN, 331.5 metres; GENOA, 312.8 metres** and **FLORENCE, 500.8 metres.**—4.30 to 5.15 p.m., Orchestral Concert on Gramophone Records. 5.35, Giornale Radio, Agricultural and Dopolavoro Notes. 6.0, Light Music on Gramophone Records. 6.20, Giornale Radio. 6.30, Time, Announcements, Report of the Royal Geographical Society, and Gramophone Records of Variety Music. 7.0, Giornale Radio and Weather, and Gramophone Records (contd.). 8.0, Variety Programme. 9.0, Talk. 9.15, Dance Music. 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and **50.26 metres** (Evening); 10 kW.—10.0 to 10.15 a.m., Religious Information in English. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.**—4.15 p.m., Concert by the C. M. Winternitz Orchestra: Overture, Stradella (Flotow); Waltz, Delirien (Jos. Strauss); Caucasian Sketches (Ippolitov-Ivanov); Foxtrot, Wenn die Sonne schlafen geht (Young-Petkere); Waltz, Schau mir ins Auge (Strauss-Grün); Selection from The Czarevitch (Lehár); Foxtrot, Welcher Weg führt zum Glück (Buder). 5.30, Agricultural Talk. 5.55, Talk: Centres of Technical Research. 6.25, Talk: The Regulation of Prices in Austria. 6.50, Time, Weather, and Programme Announcements. 7.0, See **Munich.** 7.30, Talk on Karl Marx. 8.0, Reading of Writings about Karl Marx. 8.30, Song Recital by Erich Zimmermann: Songs (Schumann), (a) Meine Rose, (b) Ständchen, (c) Unter die Soldaten, (d) Jeden Morgen in der Frühe, (e) Der Page; Songs (Wolf), (a) Blumengruss, (b) Frühling übers Jahr, (c) Der Gärtner; Liebst du um Schönheit? (Mahler); Heute ist Sonntag Palmarum (Hentschel); Annemarie (Hentschel); Glück, das mir verblieb from Die tote stadt (Korngold); Lolita (Buzzi-Peccia). 9.10, News, Weather, and Announcements. 9.25, Dance Music by the Astoria Band, relayed from the Westminster Café; Soloist, Dolly (Songs).

WARSAW

1,411 metres; 120 kW.—10.57, Time Signal and Bugle Call from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Light Music on Gramophone Records. 12.20 p.m., Weather Report. 12.25 to 2.10, Interval. 2.10, Announcements. 2.15, Economic Notes. 2.25, Aviation Notes and Anti-Gas Drill. 2.30, Announcements. 2.35, Book Review. 2.50, Popular Music on Gramophone Records. 3.20, Educational Talk: The Renaissance and Humanism. 3.40, Talk on Germany, relayed from **Cracow (422.8 metres).** 4.0, Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by G. Fitelberg. Soloist, B. Wojtowicz (Pianoforte). Overture and Ballet Music from Alcina (Händel); Pianoforte Concerto in G (Mozart); Overture, Coriolanus (Beethoven). In the interval, Announcements. 4.55, Programme Announcements. 5.0, Talk on Polish Literature. 5.20, Current Events. 5.25, Light Music. 6.0, Miscellaneous Items. 6.20, Agricultural Bulletin. 6.30, Talk: Musical Criticisms, relayed from **Cracow.** 6.45, Radio Journal. 7.0, Concert by the Station Orchestra, conducted by J. Ozminski. Soloist, Jean Dworakowski (Violin). Suite, Mozartiana (Tchaikovsky); Two Romances (Beethoven) (a) in F, (b) in G, Gipsy Dances (Nachez); Suite Africaine (Lacôme); Italian Serenade (Wolf); German Dances (Schubert); Minuet and Dance of the Fireflies from The Damnation of Faust (Berlioz); March from Athalie (Mendelssohn). In the interval, Sports Notes and Radio Journal. 8.35, Song Recital by Eugène Mossakowski (Baritone). 9.0, Reading of a Spanish Story (Barrere). 9.15, Dance Music. 9.55, Weather Forecast for Aviation and Police Notes. 10.0, Dance Music.

ZURICH.—See **Schweizerischer Landessender.**

Foreign programmes continued on page XIII.

PROGRAMMES CONTINUED

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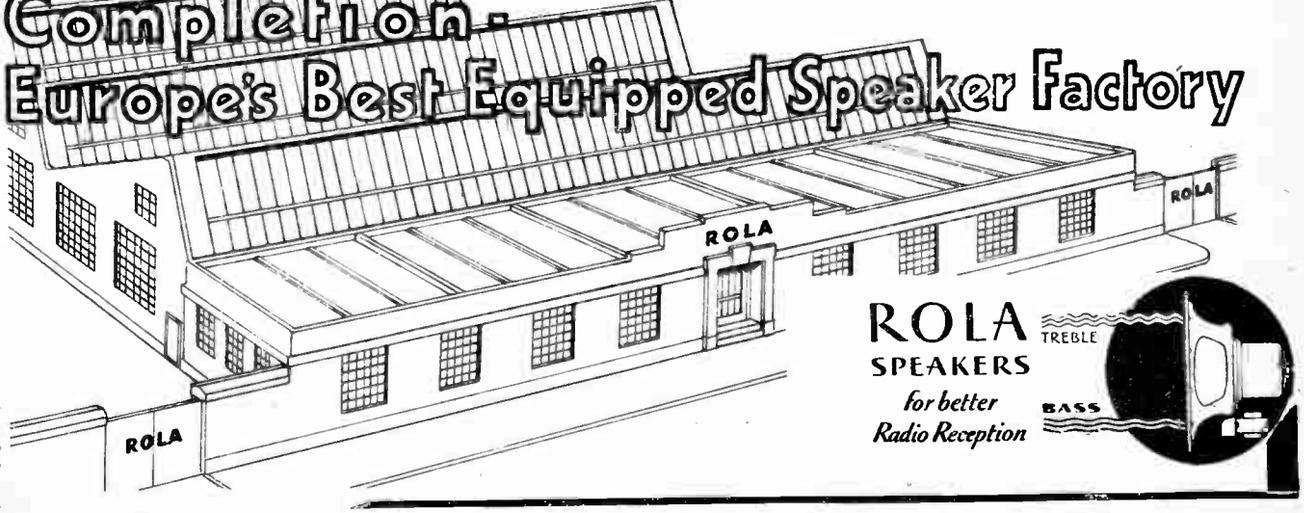

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1 **Type AF11c.** Ratio 1/10. Inductance 50/25 hys. 0·10 m A. Good amplification curve, giving approximately double the amplification at 50 cycles hitherto obtainable. Price **34/-**

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3 **Type OPM11c.** P.P. Output Transformer. Ratio 35, 56 and 100 1. Specially suitable for use with AF11c, will carry a current, if necessary, up to a maximum of 100 m A in Q.P.P. (200 m A in ordinary P.P.). For operating low resistance M.C. Speakers. Primary Res. approx. 230 ohms. Price **26/6**

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Extract from "Wireless World" February 24.

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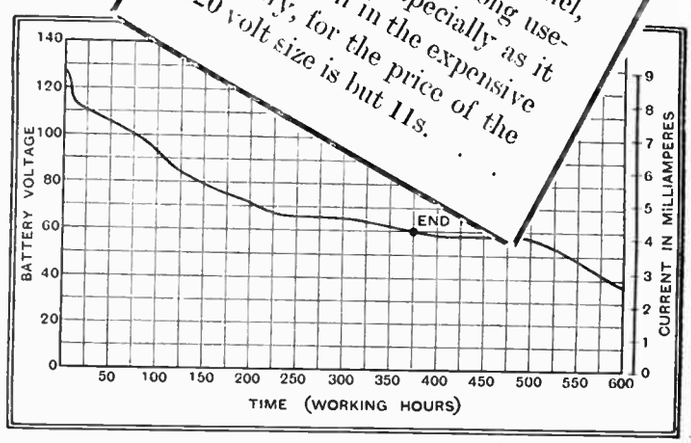

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DRY BATTERIES FOR HIGH TENSION AND GRID BIAS. Standard, Extra and Triple Power types are available. Agents throughout the country.

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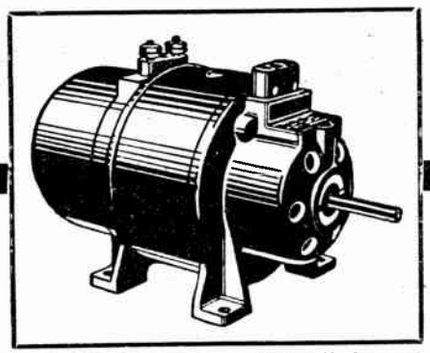

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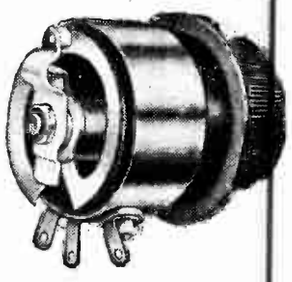

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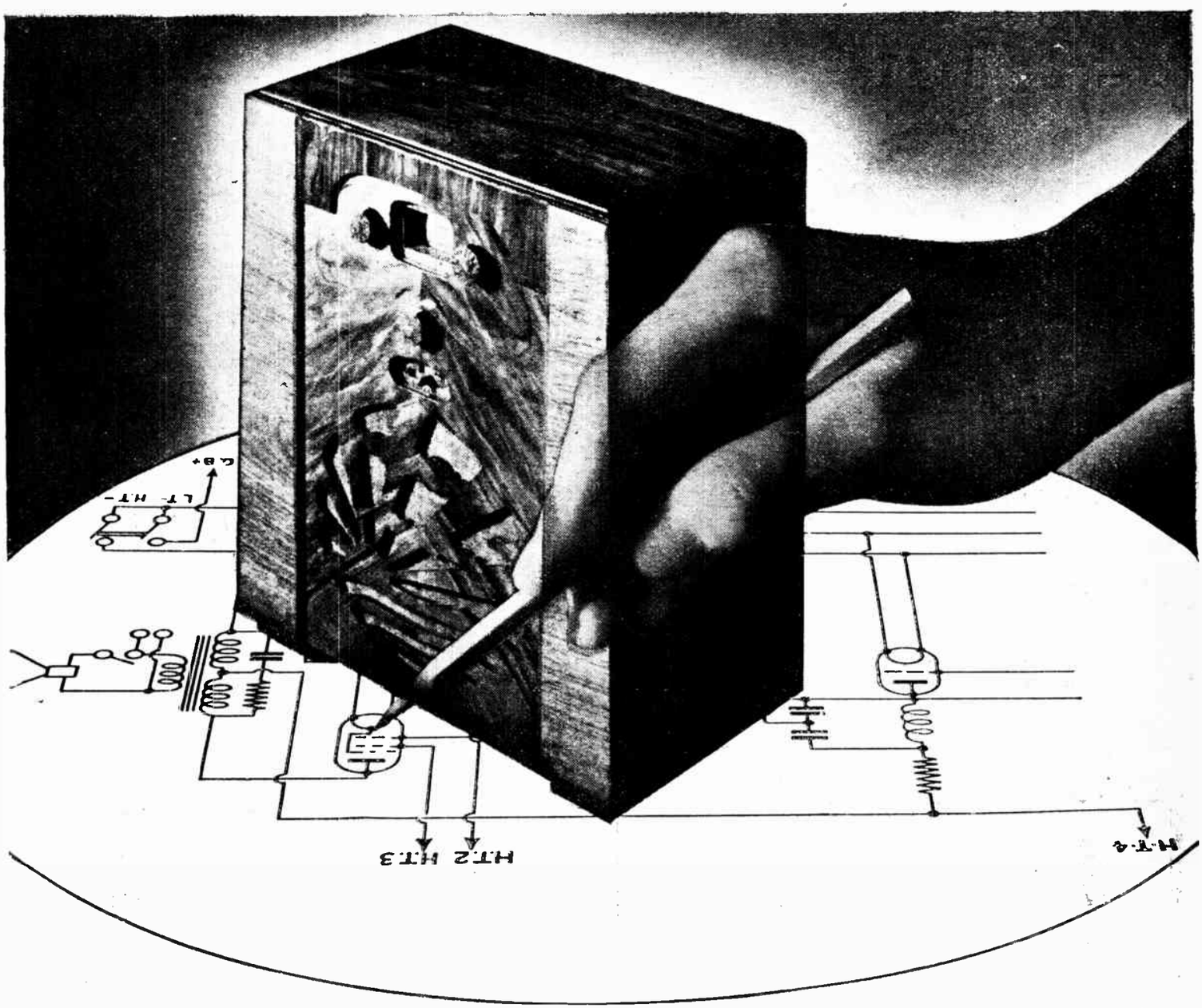

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Most loudspeaker cabinets spoil low notes and speech with "boom" or resonance, making perfect reproduction impossible. There is only one way to prevent this, the way the B.B.C. itself has chosen. Every Loudspeaker in Broadcasting House is fitted with the Howe Box Baffle— and it does the job!

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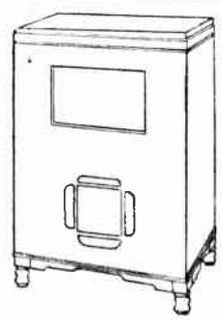

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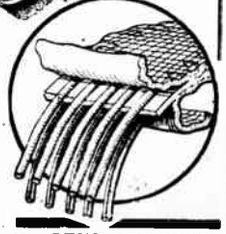
Only ¼" wide, almost as thin as a visiting card. 10 or 8 S.W.G. copper wires. (300 ft. in 20 ft. length.) Mechanically sealed at sides. Very attractive finish.



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10 STRAND Triple Insulated "GRIDWOUND" AERIAL (indoor).
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AND—interesting (fully illustrated) description of entirely new method of wiring and making joints of wonderful efficiency and invisibly neat.

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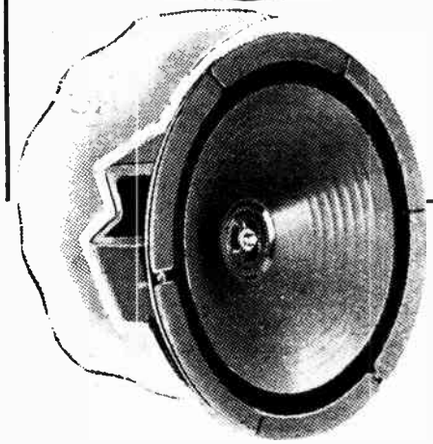
"Quiescent Push-Pull" was successfully launched by the Mazda engineers

NOW—here is a specially designed Permanent Magnet

B.T.H. RK MOVING COIL REPRODUCER

for use with Q.P.P. output



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Senior P.M. 11in. Cone	65 -
Senior D.C. 11in. Cone	45 -
Senior A.C. 11in. Cone	77 6
Junior P.M. for Q.P.P.	31 6
Standard P.M. for Q.P.P.	37 6
Senior P.M. for Q.P.P.	67 6

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A postcard will bring you the complete Sonochorde speaker catalogue and technical data booklet, also full details covering the new range of dual matched, baffle mounted, speakers illustrated above. Write today and don't delay.

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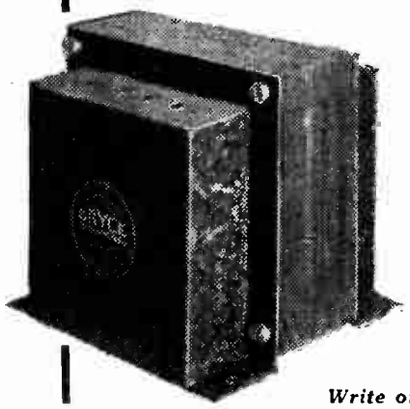

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MODEL AB 191

1. Totally Shrouded.
2. All leads cut to correct lengths.
3. Screened Primary.
4. Insulation tested to 15,000 v.
5. Lewcos Wire used exclusively.

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ACCEPT NO DELAY. DISPATCH GUARANTEED IN 24 HOURS.

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Remarkable selectivity and tonal fidelity. Output 5,500 milliwatts. Specification includes Marconiphone Pick-up. R.K. Senior Energised Speaker. G.E.C. Gramophone Motor. Massive Walnut Cabinet. Unbeatable Value at ... ... **45** GNS. complete (A.C.)

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W.W.93

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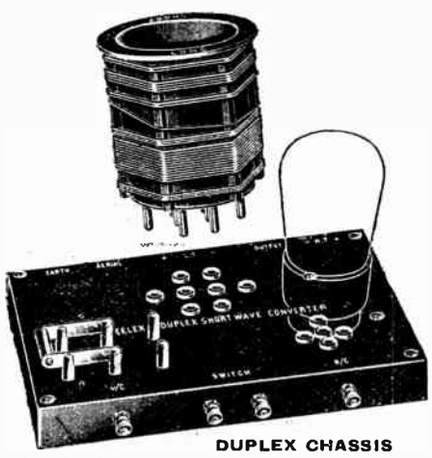
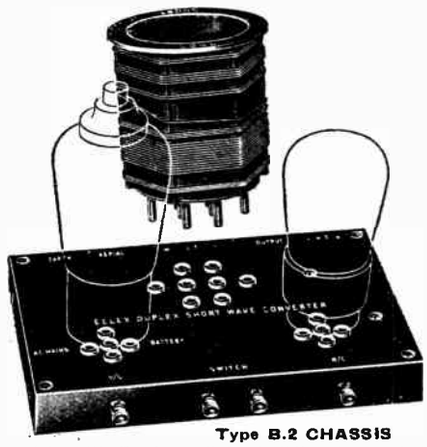


DUPLEX CHASSIS

Single valve Chassis supplied with Duplex coil. Price **£1 15 0.** Other components extra.



Type B.2 CHASSIS

Complete with Duplex coil for building into existing receivers. Price **£2 19 6.** Other components extra as Duplex model.

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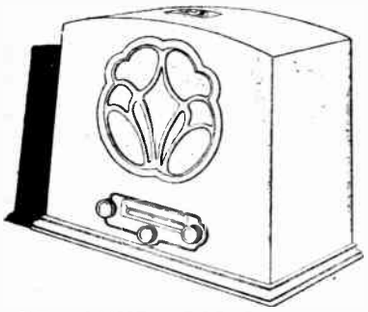

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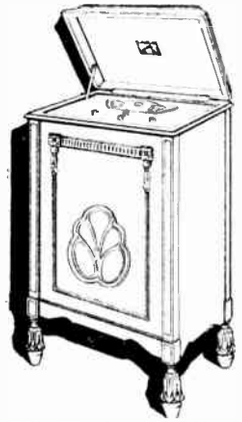

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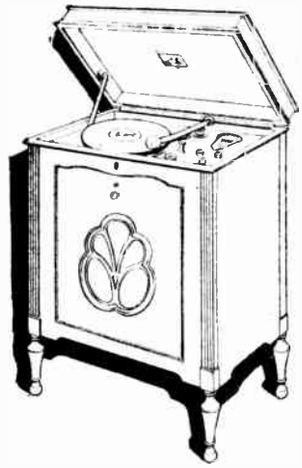

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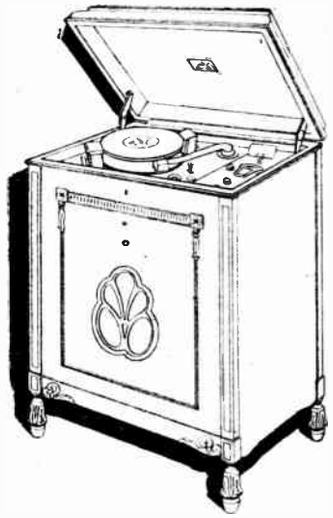

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The Wireless World

THE PRACTICAL RADIO JOURNAL

22nd Year of Publication

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As many of the circuits and apparatus described in these pages are covered by patents, readers are advised, before making use of them, to satisfy themselves that they would not be infringing patents.

CONTENTS

	Page
PROGRAMMES FROM ABROAD, pp. I—XXIV	
Editorial Comment	181
The Evolution of the Superhet	182
The Mains Set. Where we Stand To-day	184
Radiocrazy	186
Loud Speakers: Are we Progressing?	188
The H.F. Amplifier	190
News of the Week	192
Detection: Yesterday and To-day	193
Broadcast Brevities	195
The Output Stage	196

EDITORIAL COMMENT

Progress

Prospects Were Never Greater

IF one were to search through records from the earliest days of civilisation to the present time, we feel certain that no more typical example of progress could be found in any branch of science than wireless provides, particularly in its relation to broadcasting.

It can generally be stated that the first essential for encouraging rapid progress in science or industry is that there should be a popular demand for the results achieved, for public demand must always remain the greatest stimulant to technical progress.

To attempt to record the successive stages by which we have reached the present state of development in broadcast transmission and reception would take volumes of print and a vast amount of investigation, so that, although the present issue of *The Wireless World* is described as a "Progress" Number, it must be realised that it has not been possible to attempt more than a superficial survey of progress made, and then only in connection with the development of the broadcast receiver. We feel, however, that the time has come when our readers would like to be able to take stock of the present position and be reminded of some of the more important steps which have succeeded one another and brought us to the stage where we stand to-day.

In endeavouring to compile a Progress Number along these lines, we have dissected the modern broadcast receiver and deal with various units separately as being probably the most convenient and concise method of attaining the object in view.

Valves are likely to play a very important part in influencing the design of future receivers, and there will very shortly be released several new types having new applications and designed to be employed with new and interesting circuits.

The outstanding characteristic of many of the new valves will be that they will combine the functions of two valves in the same container. Their applications will be principally for automatic volume control and for push-pull amplification. In addition, we may expect to have the principle of the pentode applied to H.F. amplification instead of being confined to low frequency amplifiers, as in the past.

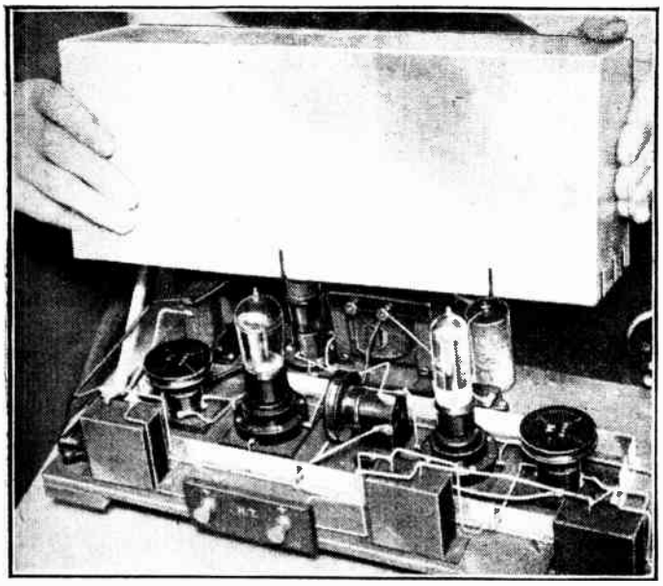
There are to-day more avenues for future progress opening up than at any previous time in the history of broadcasting, and, far from having approached a stage of stagnation, as pessimists were inclined to prophesy a year or so ago, we seem to have arrived at a position where there are so many new things waiting to be applied that the designer himself is embarrassed with the material available to him.

Reductions in Price

Only one aspect of progress need cause us anxiety for the future. There has been a recent tendency to cheapen the product to a point where performance begins to show signs of suffering. There is so much competition amongst manufacturers to-day that commercial success, instead of going hand-in-hand with progress, is tending to come into conflict with it. The ideal should be to give the public the advantage of every new development of importance, and to regard the selling price of the article as a subservient consideration.

We recognise that price must always remain a very important factor, but we sincerely trust that progress will not be stayed as a result of over-emphasis of the significance of price reduction.

The Evolution of the Superhet



The I.F. stages of a superhet described in the pages of this journal during 1925

By W. T. COCKING

OF recent years the superheterodyne has developed so rapidly that it may seem as if finality has been reached. An examination of the question, however, shows that this is not so, and a review of past history indicates the possibility of further advances. The author traces the progress made in the last decade and suggests the lines on which future research may develop.

Changes which Contributed to a Revival of Popularity

TEN years ago the superheterodyne was one of the most popular receivers, and it formed the chief standby of serious experimenters; it was, in fact, considered the ideal receiver, and it was usually spoken of as the Rolls-Royce of radio. Nevertheless, it was doomed to early extinction, and, within a few years, the superheterodyne became something of a rarity, and so it remained until its revival by *The Wireless World* in the autumn of 1930. Since that time, however, it has made rapid strides, and it has earned for itself a popularity far exceeding that which it enjoyed in its early life.

Early Examples

The superheterodyne, therefore, is unusual, for it is not common in wireless for early types of apparatus to be revived in any recognised form, and the modern superheterodyne is identical in its fundamental principles with the first working model. It is interesting, therefore, to examine in some detail the faults of the early superheterodyne which led to its former demise, the reasons which led to its revival, and the developments which are responsible for placing it in its present position of pre-eminence.

The superheterodyne was originally developed because stable and effective high-frequency amplification upon broadcast wavelengths was impossible, and it retained its popularity only as long as such amplification remained impossible. These early receivers were all very similar in design, and usually eight valves were employed. A two-valve frequency-changer was fed directly from a frame aerial, for second-channel interference was then of little importance. Three triodes were normally fitted in the I.F. amplifier, which was often tuned to 50 kc. and kept stable by the application of *positive* bias to the amplifiers; a second detector and two transformer-coupled L.F. stages completed the receiver. The current drawn from the L.T. battery was often over 6 amperes at 6 volts, and the demands on the H.T. battery were also heavy; mains operation was practically unknown, so that the receiver was obviously rather expensive in upkeep.

The sensitivity and selectivity obtainable were quite high, however, and were really the sole justification for its use, for the sideband cutting of the I.F. transformers, combined with the distortion introduced by poor L.F. transformers and overloaded valves, made the receiver notorious for its poor quality of reproduction. No quality is so appalling as that given by a badly designed superheterodyne, and this type of receiver soon became identified with poor quality, and it is undoubtedly largely through this that it fell into disuse. Unfortunately, however, the blame for the poor quality was laid on the superheterodyne principle, rather than on the practical examples of it, with the result that in certain quarters the receiver is still viewed with suspicion. Actually, of course, a properly designed superheterodyne is in no way inferior to a straight set, and is capable of giving equally good quality of reproduction, as has been conclusively proved by recent *Wireless World* designs.

The development of the Neutrodyne circuit enabled stable and effective high-frequency amplification to be obtained, and sensitive straight sets were introduced. These sets employed fewer valves than the superheterodyne, and they gave better quality, so that it is hardly surprising that their use became general. Consequent upon the later development of the screen-grid valve, the straight set became practically universal, but the superheterodyne was never completely displaced, although it was employed only for special purposes.

The year 1929 saw the introduction of band-pass tuning and a consequent improvement in both selectivity and quality. In spite of this development, however, broadcasting stations were increasing so rapidly in both numbers and power that straight sets were becoming inadequate to deal with the congestion of the ether, and satisfactory distant reception was becoming increasingly difficult. It became abundantly clear that only the superheterodyne could hope to deal with the situation so far as selectivity was concerned, but there still remained the grave problem of quality of reproduction. It was soon realised by *The Wireless World*, however, that the poor quality of the superheterodyne as then known was due merely to poor design, and was in no way fundamental.

Band-pass

As soon as modern principles of L.F. amplification, power grid detection, and band-pass tuning were fully applied, and the receiver was designed throughout for both quality and selectivity, a startling improvement was evident. All the well-known desirable characteristics of the superheterodyne were found to be still present, but the old bugbear of poor quality had disappeared. In the autumn of 1930, therefore, the first band-pass

The Evolution of the Superhet—

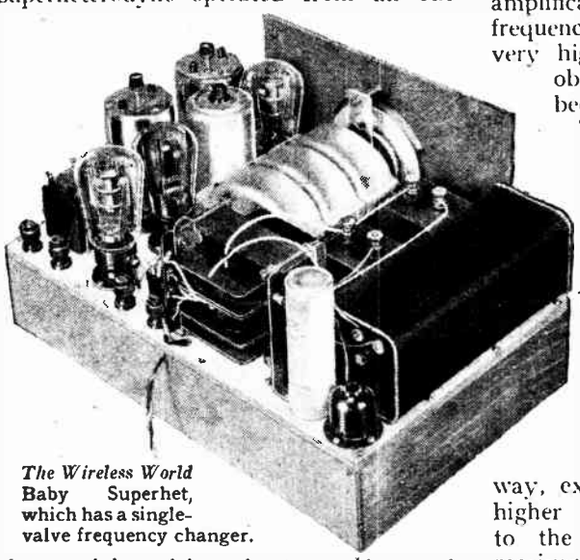
superheterodyne made its appearance,[1] and this event is a landmark in the history of wireless, for it marks the beginning of the superheterodyne revival.

Further development was still necessary, however, in order to keep pace with the increasing power of transmitters and to simplify the receiver. It was soon found desirable to employ an outdoor aerial, and this led to the design of non-radiating frequency changers,[2] so that quite modest superheterodynes became a possibility, and a five-valve set could provide sufficient sensitivity.[3] Experience showed, however, that there was a definite limit to the amount of intermediate-frequency amplification which could be usefully employed, and if this limit were exceeded background hiss became unduly prominent. In a highly sensitive set, therefore, a return to a signal-frequency H.F. stage became desirable, although this might still be unnecessary in a receiver of only moderate sensitivity.

Single-dial Control

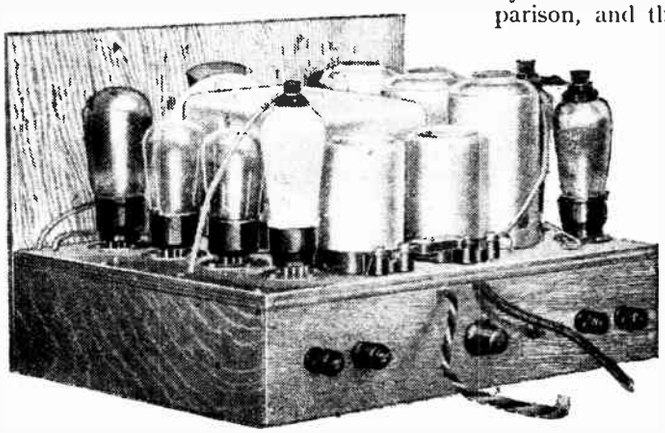
All this time the superheterodyne lagged behind the straight set in one particular—two tuning controls were employed. Ganged tuning could readily be achieved in a straight set, but in a superheterodyne the problem was much more difficult, since the various circuits had to be tuned to different frequencies but still maintain a constant frequency separation as the tuning was varied. Two solutions were eventually found, and the one which has proved the most successful from the constructor's point of view has been that in which a gang condenser with specially shaped plates is employed.

At the end of 1931, therefore, the usual superheterodyne operated from an outdoor aerial, and in order to avoid second-channel interference and radiation two pre-selector circuits preceded a non-radiating frequency changer. A single I.F. stage with band-pass tuning was used, and a power grid second detector fed a pentode output valve. Ganged tuning was just beginning to make its appearance.



The Wireless World Baby Superhet, which has a single-valve frequency changer.

The unquestioned superiority of the band-pass filter was then challenged by a rival system—the Stenode method of employing highly selective tuned circuits in conjunction with low-frequency tone correction. After much research, a combination of the two methods proved the best, and early in 1932 the Monodial A.C. Super[4] made its appearance. A judicious combination of the band-pass filter with the tone-correction principle permitted a definite improvement in both selectivity and quality of reproduction to be made, while for the first time an entirely satisfactory ganging system made its appearance. A moderate degree of I.F. amplification with additional signal-frequency H.F. amplification enabled a very high degree of sensitivity to be obtained without background hiss becoming obtrusive.



The Monodial A.C. Super with A.V.C., an announcement about which is made elsewhere in this issue.

The appearance of the Monodial does not mark so much the culmination of the superheterodyne as the start of a new class—quality superheterodynes. From that time development proceeded on distinct, and yet allied, lines; on the one hand research was conducted ever to the improvement of performance, and, on the other, to the production of a small superheterodyne comparable with the three-valve straight set in every way, except that it would possess much higher selectivity. This latter line led to the Baby Superhet[5]—a four-valve receiver of moderate sensitivity, good quality, and really good selectivity.

At the present time, therefore, we have two entirely different superheterodynes—the Monodial Super and the Baby Superhet—each representing the latest development in its class. From 1930 to 1933 the superheterodyne development has been rapid and steady, and it is now fitting to pause and enquire in what direction the future trend is to be.

In the past the straight set has progressed largely by sudden leaps forward, alternating with periods of stagnation, whereas the superheterodyne, excepting one period when it fell into disuse, has developed more slowly and steadily. The straight set falls behind the superheterodyne until it is nearly useless in comparison, and then suddenly makes a big stride forward and catches up with it. One such improvement to the straight set has just taken place—the introduction of highly efficient iron-cored tuning coils—which has resulted in a vast improvement in selectivity. It may be asked, therefore, whether the straight set may not once more become predominant.

Since superheterodynes now fall into two distinct classes, this question requires two answers; it seems probable that the straight set will now be a serious rival to, or even replace, the small superheterodyne, but it is improbable that it will ever equal, still less surpass, the quality superheterodyne. The selectivity of new straight sets will probably nearly equal that of small superheterodynes, and they will use a valve less, so that in the absence of any new development we may anticipate that the straight set will at least hold its own.

The Future

The case of the quality superheterodyne, however, is entirely different, and it seems unlikely that the same combination of selectivity and quality will ever be as simply attained with the straight set. Many new possibilities are opening out before us, and it seems probable that the superheterodyne of the future will be as great an advance upon present-day technique as modern sets are on those of a few years ago. Developments which appear probable are the general inclusion of ultra-short wavebands in the tuning range, the use of quiet automatic volume control systems, the adoption of iron-cored tuning coils, the employment of metal rectifiers instead of valve detectors, and the inclusion of controllable selectivity and quality; some of these developments will, of course, be applicable to any type of receiver, but others will be practically usable only with the superheterodyne. It should not be expected that these tendencies in design will be soon found; there are many technical difficulties to be overcome before they are realisable in a satisfactory form. Within the next few years we may hope to see most of them.

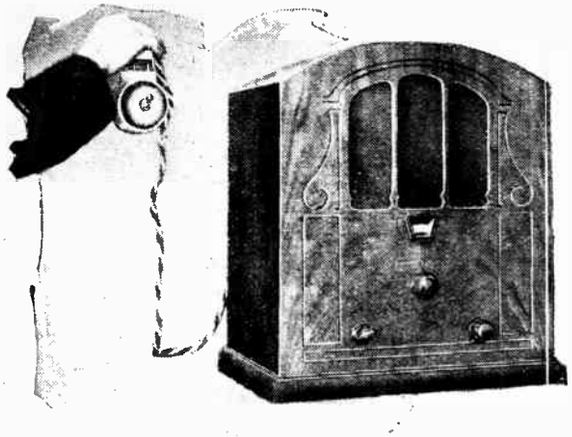
[1] The Band-Pass Superheterodyne, *The Wireless World*, November 5th and 12th, 1930.

[2] Frequency Changers, *The Wireless World*, May 6th, 1931.

[3] The Super-Selective Six, *The Wireless World*, June 3rd and 10th, 1931. The Super-Selective Five, *The Wireless World*, July 15th and 22nd, 1931. The D.C. Super-Selective Five, *The Wireless World*, August 12th and 19th, 1931.

[4] The Monodial A.C. Super, *The Wireless World*, April 13th, 20th and 27th, 1932.

[5] The Baby Superhet, *The Wireless World*, August 19th and September 2nd, 1932.



The Mains Set

Where We Stand To-day

By H. F. SMITH

ALTHOUGH the mains-operated receiver is now admitted to be superior to its battery fed counterpart in every respect, it is not so long ago that it was regarded merely as a rather unsatisfactory and unreliable substitute for it. This article deals with the vicissitudes through which the mains set has passed, and is illustrated by simplified diagrams which show that the modern power supply system is much less complex than is generally supposed.

ALMOST as soon as the first wave of public enthusiasm for broadcasting had subsided, it became evident that mains-driven receivers were bound to come sooner or later. The need for periodical battery replacements—and of finding out when they were due—was in itself a barrier to popularity among ordinary users, although a simple matter for the knowledgeable amateur.

Early attempts to press the mains into service were mainly confined to D.C. systems, for the obvious reason that no rectifier was needed. A start was made with H.T. supply, condensers and smoothing chokes being inserted at random in an attempt to eliminate ripple. When more economical valves arrived their filaments, connected in series, were heated from the same source, smoothing being effected by chokes of more or less adequate current-carrying capacity. Later on, as specialised valves for different purposes were introduced, it became necessary to employ comparatively elaborate series-parallel filament networks.

In early D.C. mains sets the detector valve often gave trouble, which was sometimes overcome by the drastic expedient of replacing it by a crystal. As often as not, grid-bias voltages were obtained from batteries, although the drop in voltage across a resistance interposed in the filament circuit was also used. Difficulties were gradually overcome, and more or less satisfactory D.C. sets, still with series-connected battery valves, were evolved. But their performance was rather uncertain, and was influenced to a great extent by the characteristics of the mains supply.

Amateur transmitters probably led the way to the use of rectified and smoothed current from A.C. mains for wireless purposes. Their rectifiers were of the electrolytic type—messy cells with aluminium electrodes in an alkaline solution. A tantalum-lead combination in an acid electrolyte proved to be rather more reliable, and was employed both for H.T. supply purposes and for charging batteries.

Early Power Rectifiers

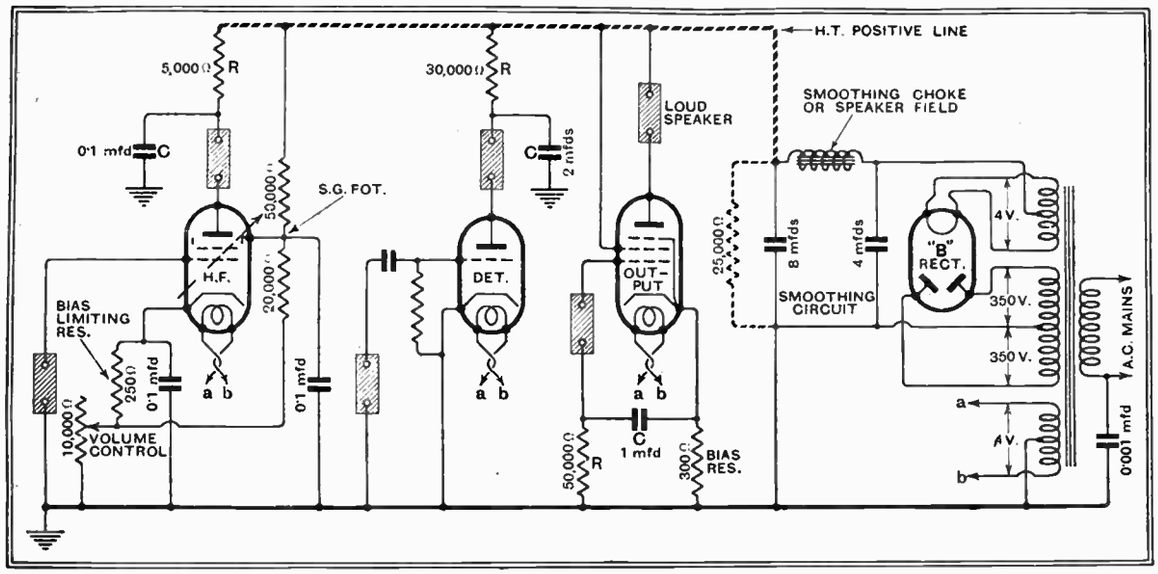
It was soon found that an ordinary bright-emitter valve, with anode and plate connected together, made quite a good half-wave rectifier, and gave enough H.T. supply for the sets of the period. Smoothing was very similar to that used to-day, but the finer points were not appreciated.

Special rectifying valves, both for H.T. and L.T., soon appeared, and by 1925 the H.T. battery eliminator and the L.T. battery charger were quite ordinary articles of commerce.

With regard to filament supply, hardly anything could be done, but, with a little luck, the early wireless enthusiast could make himself independent of the battery station by using a trickle charger for his accumulator.

Serious attempts to evolve a real all-mains set met with a measure of success in 1926. A series of Gambrell receivers, produced in that year, were fed from a valve rectifier delivering 60 milliamperes at quite a high voltage. The smoothed output of this rectifier supplied a chain of series-connected 0.06 amp. valves with filament current, H.T. supply, and grid bias potentials, the general arrangement being reminiscent of D.C. set practice.

In the same year came the far-reaching innovation of the indirectly heated A.C. valve. Up to then all valves were heated by the passage of current through their cathodes, and so heating by means of A.C. was virtually impossible where any subsequent magnification was required. As alternating differences of potential across a combined cathode-filament were inevitably impressed on the grids to a more or less serious extent, it was impossible to get reasonably hum-free reception. The new I.H. valve, on the other hand, had a separate heater and cathode, the latter element being raised to the necessary working temperature by



The power supply system of a typical modern A.C. set (the Ferrocart III) simplified by omitting grid and anode impedances, which are represented by shaded "boxes." The 25,000-ohm loading resistance reduces H.T. line voltage to the required value, at the same time ensuring ample magnetising current for the speaker field and restricting the initial rise of voltage.

The Mains Set—

heat radiated from the former. In this way the difficulties connected with A.C. filament heating were overcome, and a great impetus was given to the design of true all-mains sets.

Anode voltages at first were quite low; we regarded the power supply unit merely as a substitute for the battery, and for a time were quite satisfied to get the same output from it, plus the advantage of consistency and reduced upkeep cost. But, as better output valves were produced, the advantage of higher voltages became evident, and as any desired voltage was readily obtainable from A.C. mains there was little need to be niggardly.

In conjunction with the early I.H. valves, it was quite customary to use a directly heated battery valve of the super-power type, its filament being fed with A.C., stepped down to the rated voltage. Later on, output valves of the indirectly heated type became available, and also special types for direct A.C. heating, with thick filaments.

The early A.C. sets suffered from various defects, not the least serious of which was grid emission in the indirectly heated valves. The grid became coated with emissive material thrown off from the cathode, and itself began to emit electrons when its temperature became sufficiently high—as it often did.

All Mains—Except Bias

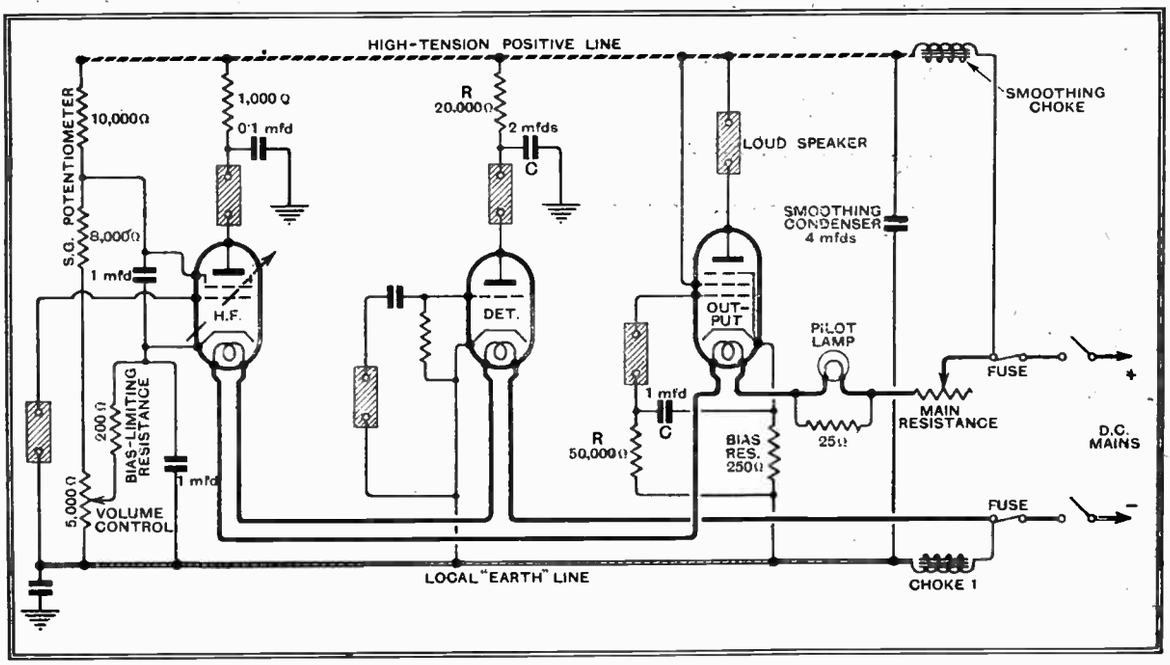
Automatic grid bias gave a lot of trouble to designers, and sometimes they chose to include bias batteries in sets which otherwise derived all their working voltages from the mains. This proved to be a bad move; the uninformed public naturally neglected the bias batteries, with disastrous results to the quality of reproduction and also to the valves. Those who avoided the use of batteries entirely often went to the length of employing a separate bias unit with its own rectifier. True self-bias, where grid voltage is derived solely from the anode current of the valve itself, was looked upon with suspicion, as cathode-heater insulation was another weak point in the early I.H. valves; it was dangerous to work them with appreciable differences of potential between these electrodes.

The Westinghouse copper-oxide rectifier, introduced in 1927, played an important part in establishing the all-mains receiver. This device, on account of its permanency, robustness, and simplicity, became almost immediately a serious competitor to the valve, and was used for the supply of H.T., grid bias, and also for accumulator charging.

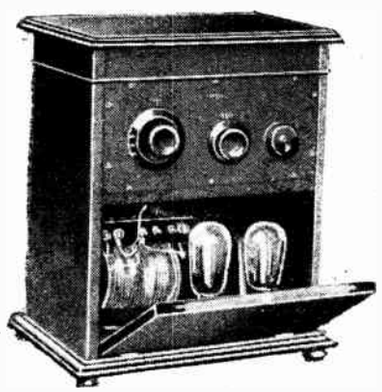
The modern A.C. set dates from about 1929 or 1930, when the defect of grid emission in I.H. valves was finally overcome by improvements in construction, by which it was ensured that the grid should run cool. Since that time A.C. sets have no longer been looked upon merely as unreliable substitutes for those with battery valves; they are definitely better, on account of the inherently greater efficiency of I.H. valves with equi-potential cathodes.

Nowadays the design of an A.C. set has become an exact science, and follows almost stereotyped practice; even a short-wave receiver may be made to operate as satisfactorily from the mains as from batteries. The power supply system for a typical three-valve circuit will seldom be basically different from that shown in the accompanying diagram. Anode current is derived from a full-wave valve or a metal rectifier, smoothing being effected by the loud speaker field in conjunction with large condensers. These condensers may be of the electrolytic type, which, apart from combining high capacity and compactness with low cost, have the convenient property of restricting undue rise in H.T. voltage by developing a leak when excessive potentials are applied to them.

Valves are customarily self-biased, each by the flow of its own anode current through a bias resistor inserted in the cathode lead. Decoupling or voltage-reducing resistances are inserted in the anode feed circuits of those valves requiring less voltage than that of the H.T. positive "line." A somewhat elaborate potentiometer network is provided for maintaining a reasonably constant voltage on the H.F. valve screening grid.



The power circuits of the "Modern D.C. Three" serve to illustrate present-day practice in D.C. set design. Wiring of the series-connected valve heaters is shown in heavy lines.



Completely independent of batteries: a Gambrell A.C. set of 1926.

After many delays, the D.C. mains user has now been placed in almost as good a position as those with A.C. supplies; his remaining handicap is a limited H.T. voltage. Economical indirectly heated D.C. valves, virtually equivalent to their A.C. counterparts, have recently been produced, and they may be operated with differences of potential of well over 100 volts between cathode and heater.

The power supply system of a present-day D.C. set is generally on the lines indicated in the diagram on this page. It will be seen that the main difference, as compared with an A.C. receiver, is that the valve heaters are wired in series. The principle of self-bias is adopted—indeed, there is no satisfactory alternative — and all cathodes, grids, and anodes are returned to a local "earth." The original element of uncertainty has almost disappeared, and a set planned on these lines can be depended upon to work well in any circumstances.

Radio apparatus of almost every kind is now operated successfully from the mains, and few difficulties remain to be overcome. Excessive variations in supply voltage are still met with, but the position is improving, and it is being brought home to the supply companies that they are under a legal obligation to deliver their product "true to label."

RADIOCRACY

By

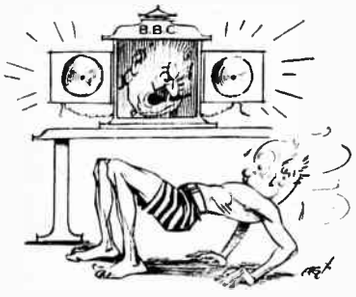
FREE GRID, Junior

Glancing Back at the Future

IT is with some trepidation that I take up my pen to record the events which have led up to the distressing state of affairs in which our country now finds itself. At great personal risk I succeeded in constructing the all-metal subterranean chamber in which I write, hoodwinking the authorities into believing that I was experimenting with a new earthing device. I am now in the one place where, owing to the screening effect of its walls, the ears and eyes of the all-powerful bureaucracy still known as the B.B.C. cannot penetrate.

It is not yet eighty years since the natal cry of the present tyranny was heard on an upper floor in what used to be known as Marconi House. In its early years it showed but little sign of the cloven hoof; indeed, it was welcomed in the homes of the people as a new invention and was regarded with friendly eye even by theatrical producers and similar parasites who at that time battened on the easy tolerance of the public.

When, however, the monster passed its teething stage the theatrical mandarins began to sense a growing menace to the fatness of their wallets. But their resistance was brief and transitory, and at the age of ten years the monster had already shown signs of riding roughshod over everything that opposed it. Its Director-General, after whom the first month of the



A brutalising routine.

year is now named, had already stated that he intended to give the people such entertainment (save the mark) as he thought they needed rather than that for which they craved. Although the monster gradually gained a stranglehold on our educational system during the next few years it cannot be said that the menace became acute until the perfection of television in what would be about the year 1940 in the old-style calendar, or 18 anno Bebeciensis in the new-style calendar established by our present oppressors as soon as they secured the reins of government.

In the decade following, the monster threw off the last vestige of its sheep's clothing and succeeded in getting Parliament to pass a Bill putting all forms of entertainment in B.B.C. hands.

The end of all our liberties came in the year 1970 when the B.B.C. succeeded in getting Parliament to pass a Bill abolishing itself and placing the destinies of this once fair land into their own sacrilegious hands, so establishing the present reign of terror. With all power in their hands the B.B.C.'s first step was to revise the calendar and commence a new era from the date of the foundation of the B.B.C. Thus the year 1922 A.D. became 1 anno Bebeciensis; hence we are now in the year 78 A.B. At the same time all measurements of time were changed over to the decimal system, the months were reduced to ten and their names changed to commemorate the vandals who took part in our present enslavement. As these notes are intended for (I hope) a newer and a better civilisation, I shall stick to the old-style calendar.

Goodbye to All That

Following the establishment of the radiocratic form of Government in the year 1970 our ancient and hard-won freedom was speedily abolished, Magna Carta being torn up in the latter part of the same year. One of the earliest acts of the radiocracy was to abolish unemployment by the simple expedient of making it illegal. In the following year all unofficial books and newspapers were suppressed. During the next five years our children were educated on lines laid down by the B.B.C. History was definitely abolished to the great delight of the younger generation and geography was greatly modified, with the result that a child of to-day has no knowledge of any history preceding the present era nor has he anything but a hazy inkling of those lands beyond the sea where freedom still reigns. Some of the more daring of grandparents had ventured to tell their sons of the last European war.

I myself well remember how in my early years my late-lamented father told me of it and stressed the terrible privations and suffering which it brought about. Before his lamentable death at the hands of the B.B.C., however, he had discreetly changed his opinions and used to sigh for the good old days when he spent many happy hours knee deep in icy water with but little to eat and the shells bursting all around him.

In those days one was not compelled to take protein and carbohydrates in the special quantities and times prescribed from Broadcasting House; it was permissible to eat anything you could get hold of, while drinking was allowed for at least six hours during the day. It will probably be remembered that quite early after the founding of the new regime my lamented parent was arrested on an old charge of breaking into Broadcasting House some thirty-five years previously and summarily put to death, his embalmed body being suspended in the foyer of Broadcasting House as a public example. There it may still be seen.

As decided upon by the D.-G.

All sport was, of course, eventually abolished as the Government decided that the entertainment provided by them in the evening was sufficient for human needs. These entertainments, I must point out for the benefit of posterity, consisted and still consist of moral and intellectual uplift dramas written by synthetic dramatists devised by the B.B.C. technical experts.

Graded and Degraded

It was not long before further interference with our daily liberties took place, and we were and still are all compelled to rise from our beds in the morning at the word of command barked from the television screen opposite our beds by an individual somewhat reminiscent of my father's prismatic description of the old-time Sergeant-Major. Severe punishment is meted out to all those who do not spring to it smartly. Once out of bed we are compelled to go through a brutalising routine of physical exercises still under the harsh voice and baleful glare of the B.B.C. official. This finished, and our baths taken by numbers in the same manner, breakfast is taken, consisting of a Government tablet containing the necessary number of proteins and carbohydrates for the day's needs. This is, of course, the last as well as the first meal of the day. Breakfast over, scholastic

PROGRESS!

COLVERN
FERROCART COILS
OPEN A NEW ERA IN RADIO RECEPTION

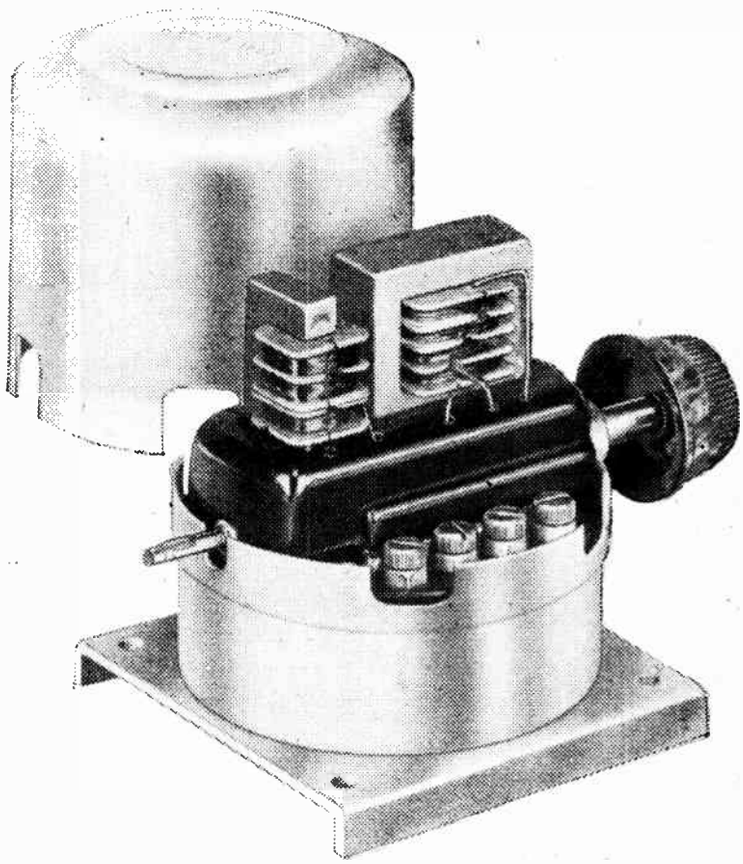
It has long been recognised that tuning coils of maximum efficiency are of paramount importance in the attainment of selectivity and sensitivity from a receiver. The design of tuning coils has made large strides in the past few years, but space considerations and the realisation of effective screening for band-pass filters and between the various stages of a receiver has involved the use of relatively small winding diameters for the coils. Thus, although actual progress has been made, this self-same progress has involved a reduction in the efficiency of the coils themselves.

Colvern Ferrocart coils have, however, changed all this at one fell swoop. These coils, though of considerably smaller dimensions than the relatively inefficient screened air-cored coils to which we have become accustomed, are actually more efficient than the unscreened Litz wound large diameter coils which have always been regarded as the last word in efficiency but which could never be put to practical use in a receiver, owing to their bulk and the impossibility of screening without very serious loss of efficiency.

The first types to be available are:—

TYPE F1—F2. Input band-pass filter. Constant selectivity, ganging unaffected by variations in aerial reactance, symmetrical resonance curve.

TYPE F3. Autotransformer inter-valve coupling with reaction, ganging perfectly maintained on both wave ranges by transfer of tapping point in correct turns ratio, practically constant reaction.



SPECIFIED FOR THE "W.W. FERROCART THREE"

One set F1, F2, F3 Coils ganged on sub base plate with wave change switch .. Set **50/-**

One aluminium chassis, pierced with necessary holes, finished grey cellulose **10/6**

One 10,000 ohms Potentiometer, Type ST5C .. **5/3**

Regarding the performance of a three valve receiver, standard in other respects, but employing the above combination of Ferrocart coils in place of the corresponding types of air-cored coils, we do not think we can do better than quote a few passages from the "Wireless World" review of the receiver they have designed round these coils.

"The introduction of ultra-efficient iron-cored tuning coils has at last made it possible to obtain from a simple straight set a degree of selectivity which bids fair to rival that of the superheterodyne. To those accustomed to ordinary sets the selectivity given by the new coils is a revelation, and **the principle undoubtedly opens out a new era in radio reception** and will give a new lease of life to the straight set."

"The improvement in performance which this receiver shows over a similar type fitted with ordinary coils is so great that it can be realised only by actually handling the set . . . . it is in selectivity that the performance is so outstanding. It is no exaggeration to say that the selectivity is considerably greater than that given by the average two H.F. set with four tuned circuits."

All Colvern Ferrocart coils are matched to the folldwing inductance values—medium wave 157 μH, long wave 2,200 μH when screened, the departure from these values is guaranteed to be less than ½ of 1%.

MADE UNDER LICENCE FROM THE PATENTEE, HANS VOGT.

COLVERN LTD., MAWNEYS ROAD, ROMFORD

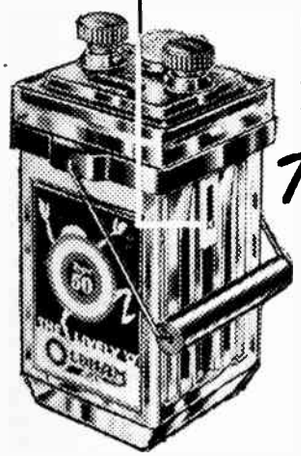
Advertisements for "The Wireless World" are only accepted from firms we believe to be thoroughly reliable.

NO MORE MISSED PROGRAMMES

DOWN! TIME TO RECHARGE

NOTHING EXTRA TO PAY FOR THE AUTOMATIC DISCHARGE INDICATOR

The Oldham Automatic Discharge Indicator is like a watchman. When your accumulator begins to run down, that beckoning bead says "It's time to recharge!" And there's nothing extra to pay for this ingenious indicator. Get a Lively "O," the accumulator that bristles with exclusive features! It's ready to do its job five minutes after you've bought it . . . ready to give you extra hours of listening luxury . . . without trouble—for less money.



The Lively 'O'

ACCUMULATOR

MADE BY

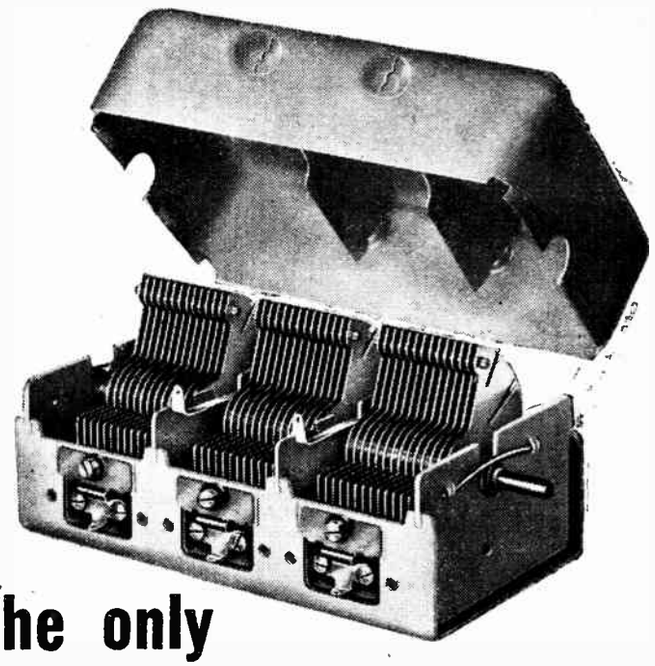
OLDHAM REGD.

British made by Oldham & Son, Ltd., Denton, Manchester, and at London, Glasgow, Belfast and Dublin.
Makers of Dry Batteries & Accumulators
Established 1865.

0.25 (Green Label) 25 amp. hrs. (actual) for 2-valve Sets - - - - 5/6	0.50 (Red Label) 50 amp. hrs. (actual) for 3-valve Sets - - - - 9/-	0.75 (Blue Label) 75 amp. hrs. (actual) for 4-valve and Larger Sets - 12 6

♡ 25 H

ALWAYS IN THE VAN OF PROGRESS



The only GANGED CONDENSER

specified for the

FERROCART III

"The aim . . . . . has been to obtain a maximum of selectivity . . . . . and the choice of suitable components becomes quite limited . . . . . The sharper tuning renders ganging more critical and necessitates the choice of a ganged condenser with very accurately matched sections."—"Wireless World," *Feb.* 24

British Radiophone ganged condensers have been chosen exclusively for use in the "Ferrocart III" because they are the only condensers that will satisfactorily tune with the new Ferrocart coils.

British Radiophone Ganged Condensers are constructed with such precision that accuracy is guaranteed between any two sections to within 1 m. mfd. or ½% whichever is the greater.

The main frames are built up from sheet steel so as to resist all tendency to distort. The best aluminium is used for the vanes, which are of substantial thickness and well spaced by a unique method eliminating any possibility of error.

Patented spring loaded bearings fitted with keep plates are employed, preventing end play and ensuring smooth spindle rotation.

Specified for the

"WIRELESS WORLD" FERROCART III

Standard 3 gang Condensers with R.H. Trimmers complete with cover, type 344J	28/–
Escutcheon and Disc Drive Assembly with pilot lamp attachment	5/–
Volume control 10,000 ohms, type 474	5/–
Q.M.B. Change-over switch, type 450	1/9

Write for full descriptive literature.

BRITISH RADIOPHONE LTD.
ALDWYCH HOUSE, ALDWYCH, LONDON, W.C.2.

RADIOPHONE GANGED CONDENSERS

Radiocrazy—

studies (adult and juvenile) commence and last throughout the day since all necessity of earning a living has long since been abolished, our clothes as well as our food being provided by the Government.

Soon we were all graded into various categories according to our intellectual capacity as revealed by the universal system of psycho-analysis developed by the B.B.C., general listening was forbidden, and fixed wavelength receivers were doled out by the Government, the wavelength being allotted according to the mental category of the listener; he was thus unable to obtain any of the intellectual sustenance intended for anybody in another category.

But no matter in what category a person was placed, he was compelled to have a visaphone—or combined sound and sight instrument—hanging from each wall of every room, and in the garden as well. Thus throughout every moment of his life, whether sleeping or waking, he was under the protective eye of a B.B.C. official.

With regard to our physical well-being, I may mention that ill-health of any kind was definitely made a criminal offence in 1977. It did not take long for the B.B.C. to establish a regular medical inspection service, and now we are examined every morning through the visaphone by a B.B.C. medical man.

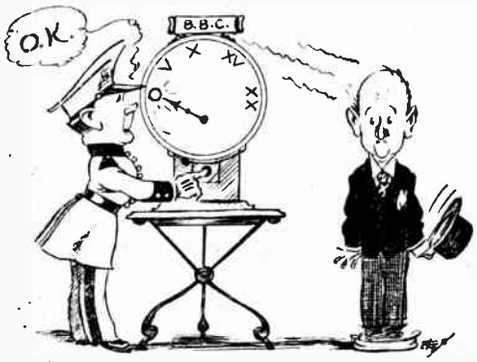
Birds, Beasts and Flowers

Naturally such old-fashioned methods of diagnosis as temperature taking and auscultation have long since been abandoned in favour of radio methods, which consist in measuring the ether-wave absorption of any suspected organ and comparing it with its normal absorption. Carefully tabulated data concerning the inner working of every citizen are kept in the medical archives of Broadcasting House.

It seems hardly credible that our weather, owing to what must be conceded was a really marvellous development by their technical experts, is now absolutely under the control of the B.B.C. Instead of going through the old-world custom of reading a weather forecast, which, judging by its reliability or lack of it, was apparently obtained by the study of the chief announcer's hand made by an old-fashioned palmist, the Corporation now issues the exact barometer and thermometer readings, wind velocity, etc., which have been decided upon by the Director-General. This is announced in the general orders of the day which are broadcast the previous evening.

I well remember the shocked but naturally suppressed feelings of the populace some twenty years ago, when the fiat went forth for the demolition of Westminster Abbey and similar buildings on the ground that they did not comply with the artistic requirements of the B.B.C. A similar futile outcry arose when the countryside was denuded of all trees, flowers, and other forms of vegetation, synthetic articles taking their places. Birds, feathered or otherwise, were replaced by loud speakers in the substitutes for trees.

The site of Westminster Abbey is to-day



All thoughts picked up.

occupied by a chromium plated steel structure in which the remains of the outstanding personalities of the B.B.C. are entombed. The site of St. Paul's is taken up with a similar mausoleum for the Directors-General.

It is fifteen years now since the edict went forth that all our streets and cities were to be renamed after famous B.B.C. officials.

The last straw has been the invention of the thought machine, whereby the thoughts of each individual are picked up and transmitted to the B.B.C. It was indeed fortunate that before this final calamity occurred I had already installed this metallic underground chamber, effectively screened from all Government spies for the simple reason that, as yet, none of the experts has invented any method by which ether waves can penetrate thick metallic plates. This naturally accounts for the decree forbidding the use of metal in the construction of buildings.

What will be the outcome of it all I don't know, but something vast and cataclysmic is needed which will make the French Revolution appear like a Sunday School treat. Oh for the dear old days of Arcady in 1933 or thereabouts when our mis . . . . [Here the manuscript is torn.]

DISTANT RECEPTION NOTES

SIDEBAND splash is now by far the worst bugbear of the long-distance man equipped with a sensitive and selective receiving set. He may have, for instance, no difficulty in separating Katowice—one of the most reliable of European stations—from its wavelength neighbour, Athlone, no kind of interference being observable. But the moment the Irish station begins to transmit speech the unintelligible splutterings of sideband splash ruin the reception of Katowice.

The same is true of many another pair on adjacent wavelengths: the Poste Parisien and Breslau, the North Regional and Langenberg, the Scottish Regional and Hamburg, Heilsberg and Bratislava are all examples. The sad part of it is that the trouble is mainly due to hopeless over-modulation by transmitting stations during spoken items, and that very little can apparently be done with the best of receiving sets to improve matters.

The listener in all parts of Europe has shown emphatically that he wants to be able to hear foreign stations when the local programme is not to his liking. It is surely the duty of the broadcasting authorities in the many countries of Europe to ensure that the performances of a first-rate set are not unduly handicapped by delinquencies on their part. This matter should be thoroughly thrashed out at the forthcoming conference of the U.I.R.

The Berlin Relay continues to give a good account of itself on 283.6 metres, though there is still no official information regarding any increase in power, or the *solus* use of the nominal common wavelength by this station. If any reader has been in the habit of skipping over 283.6 metres, thinking that it could not possibly be worth while spending time in tuning to a group wavelength, I hope that he will give the Berlin Relay a trial on one or two nights during the present week, for it is often by far the best medium for the reception of the excellent Berlin programmes.

What exactly is the power output of the Hungarian station using officially the wavelength of 269 metres, though at the present time its transmissions make a closer approach to 210 metres? In some lists it appears as a mere fraction of a kilowatt, whilst in others it is shown as many times as much. It certainly sounds like several kilowatts!

Atmospherics Mar Long Waves

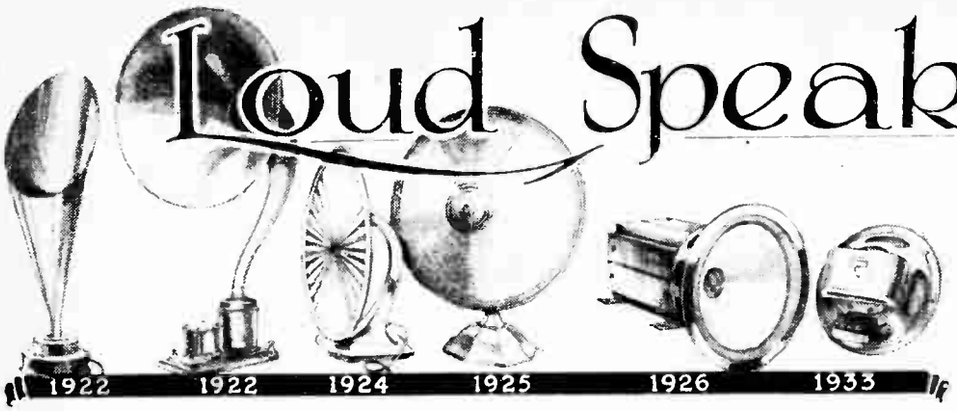
I was amused to read recently in a lay paper that, though American reception might provide certain thrills, it was hardly for the man in the street, since it demanded almost uncanny feats in the way of fine tuning. Anyone who has heard WCAU, WPG, WIOD, WTAM, WTIC, or KDKA on a night when conditions were favourable may be excused a smile on reading such statements. These stations, and often a good many others, are far easier to tune in than most European stations, for their strength is amazing, and one has not the difficult task of separating them from powerful wavelength neighbours.

The big changes that we have experienced recently in temperature and in the barometric level have produced a certain amount of atmospherics, which have had at times an adverse effect upon the reception of long-wave stations. Still, we can hardly complain, for Huizen (Hilversum programmes), Zeesen, Radio-Paris, and Kalundborg have been coming in with fine strength both in daylight and after dark. Motala, too, is very well heard, though Warsaw has been, perhaps literally, a little under the weather.

The evils of sideband splash notwithstanding, it is a poor set nowadays that cannot give its user a choice of at least a dozen alternative programmes of genuine entertainment value on the medium waves on any evening of the week. My own "star" list at the moment is: Nürnberg, Hörby, Trieste, Turin, Hilversum (Huizen programmes), Bordeaux Lafayette, Genoa, Milan, Brussels No. 2, Strasbourg, Toulouse, Stockholm, Rome, Prague, Florence, Munich, and Budapest.

D. EXER.

Loud Speakers—Are We



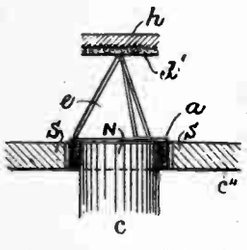
THE cone diaphragm moving-coil loud speaker made its debut in this country in 1926. To-day it is the predominant type. In the intervening period what improvements, if any, have been made and in what direction are we to look for future developments?

Past Progress—Future Development

WHEN broadcasting started in this country reception on headphones was to all intents and purposes universal. In 192- Messrs. S. G. Brown introduced their "loud speaking telephone" with its straight-sided conical horn, but at first it was regarded merely as a novelty for demonstration purposes, and the majority of broadcast listeners, while admitting the advantages of the new device for domestic reception, were unshaken in their belief in the superiority of the crystal set with headphones from the point of view of "purity of tone."

The general adoption of the loud speaker by the listening public was therefore dependent on the attainment of quality of reproduction comparable with crystal-headphones standard. The introduction of the curved horn, roughly approximating to the now well-known exponential law of expansion, marked the first step forward. Then attention was directed to the driving movement, and the Western Electric balanced armature and Magnavox moving-coil horn loud speakers did much to shake the confidence of headphone enthusiasts.

The landslide in favour of loud speaker reproduction was undoubtedly started by by the introduction in 1924 of the Sterling "Primax" pleated diaphragm. The improved bass response and apparent absence of direction effects made a very deep impression, and definitely established the so-called "hornless" loud speaker in public favour. The next two years saw a steady advance in the design of this type, and the Celestion reinforced diaphragm and the Western Electric "Kone" models will always be remembered as landmarks in the development of sound reproducers.



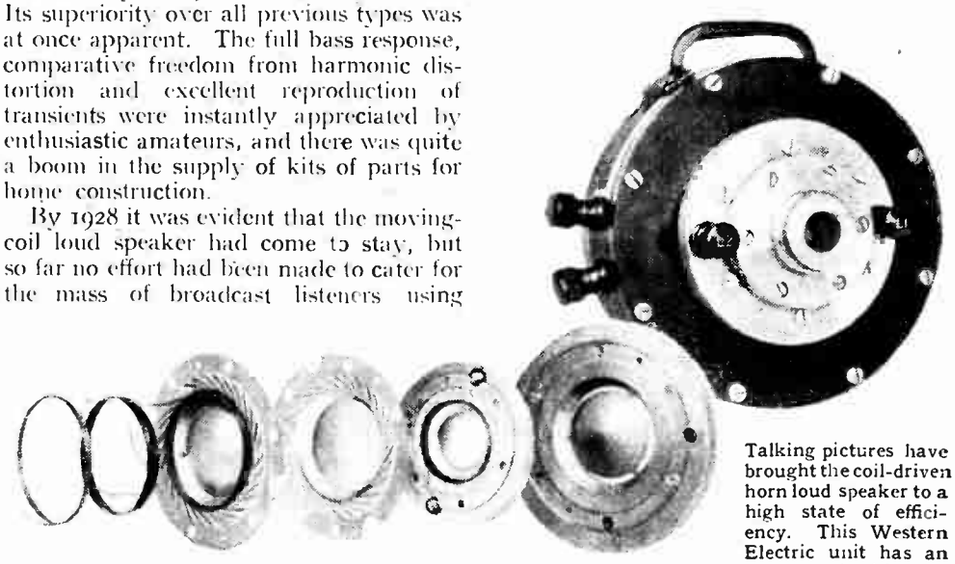
A moving-coil loud speaker in 1898! (Reproduced from British Patent No. 9712 by Sir Oliver Lodge.)

All this time the moving-coil principle had been sadly neglected. Patented in 1898 by Sir Oliver Lodge, the only important application to commercial loud speakers was in the Magnavox horn. The prototype of the modern coil-driven cone loud speaker was developed in America by Rice and Kellogg in 1925, and the first commercial model made its appearance in this country in 1926 as the B.T.H. R.K. Its superiority over all previous types was at once apparent. The full bass response, comparative freedom from harmonic distortion and excellent reproduction of transients were instantly appreciated by enthusiastic amateurs, and there was quite a boom in the supply of kits of parts for home construction.

By 1928 it was evident that the moving-coil loud speaker had come to stay, but so far no effort had been made to cater for the mass of broadcast listeners using mains or battery sets of low power. The moving-coil speakers of this period were massive affairs with cast-iron mains-energised field magnets, large-diameter coils, and wide air gaps. Their sensitivity was low, and it was generally accepted that only the more affluent members of the so-called "L.S.5 brigade" could afford to run them. Nevertheless, the quality of reproduction at this stage was of a very high order, and it is open to question whether that standard has been improved upon.

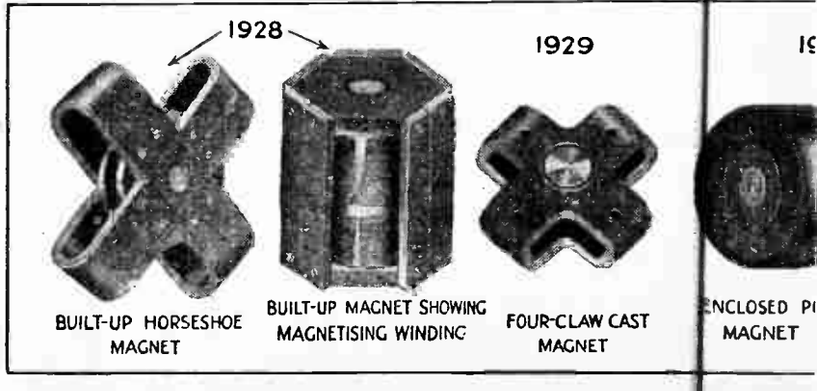
The fact that the majority of listeners continued to use their moving-iron cone loud speakers was no reason for supposing that they would continue to do so if moving-coil quality were offered them at a price within their reach. As the majority of sets at that time were battery operated it was evident that moving-coil loud speakers for the masses would have to be of the permanent-magnet variety.

The subsequent trend of commercial loud speaker design has been largely influenced by the development of the permanent magnet. The earliest examples in 1928 were cumbersome and expensive. For the most part they were built up of standard horseshoe or bar magnets, and in some cases magnetised by field windings



Talking pictures have brought the coil-driven horn loud speaker to a high state of efficiency. This Western Electric unit has an efficiency of 50 per cent. compared with 1 or 2 per cent. in the case of domestic broadcast loud speakers.

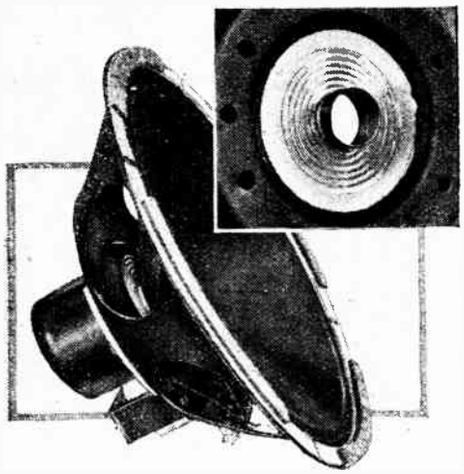
STAGES IN THE DEVELOPMENT



Progressing?

which had to be left inside the magnet assembly.

The first real advance came with the introduction by Swift, Levick and Dar-



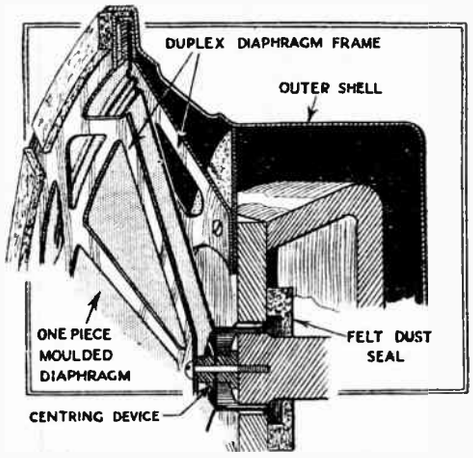
Accurate and permanent centring of the moving coil has been necessitated by smaller air gap clearances in the field magnet. In the Sonochorde loud speakers a concentrically corrugated sub-diaphragm gives adequate freedom of movement with great lateral rigidity.

wins in 1929 of the four-claw cast-steel magnet with mild-steel pole pieces. This type held the field for the next two years, and although totally enclosed pot magnets and built-up magnets with laminated end plates had a short vogue in 1931, it was not until 1932 that the next important advance was made. It was then found that forged bars would give just as satisfactory results as cast magnets at a much lower cost, and the two-claw magnet became the standard type. The latest development is the composite magnet in which two different grades of magnet steel are employed.

For a given weight of magnetic material the useful working flux is increased as the length of the air gap is reduced. Thus we find that the loud speaker manufacturers in their efforts to reduce prices have been forced to accept progressively smaller clearances for the moving coil. This has proved a great incentive to precision methods of manufacture, and the modern small permanent magnet moving coil is vastly superior from the point of view of mechanical construction to the massive hand-made product of the 1928 period.

The next step was to ensure reliability, for, although the problem of producing loud speakers with small clearances had been solved, the percentage of returns due to damage in transit and repeated handling in the assembly shops of set manufacturers was high. The question of mechanical rigidity and permanence of alignment has, however, now been solved, and the Magnavox range of loud speakers and the R. & A. "Victor" model are notable examples of the methods adopted to afford protection for the diaphragm.

To sum up the position, it can be said without fear of contradiction that the small moving-coil loud speaker of to-day shows a great advance on its predecessor



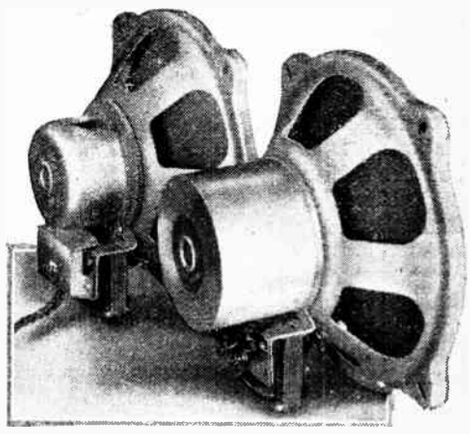
The R. & A. "Victor" loud speaker; an example of modern methods of construction in the interests of mechanical strength and permanence of alignment.

of five years ago from the point of view of consistency of performance between individual specimens of a given make and reliability under normal conditions of operation. At the same time mass-production methods have resulted in standardisation, not only of mechanical design, but also to some extent of quality of reproduction. Nevertheless, the general effect is remarkably good, and there can be no doubt that the purchaser of a small moving-coil loud speaker to-day gets a better performance for his money than he did in the days of the moving-iron cone loud speaker.

Eliminating for the moment the question of price, can it be said that the performance of the average moving-coil loud speaker is better than it was in 1928? Without going so far as to say that there has been a definite retrogression, no one will dispute that progress has been in the direction of supplying a certain standardised performance at decreasing cost and with increasing reliability. The time has now come to call a halt to the price war, and to divert all new technical developments to improved performance at existing prices.

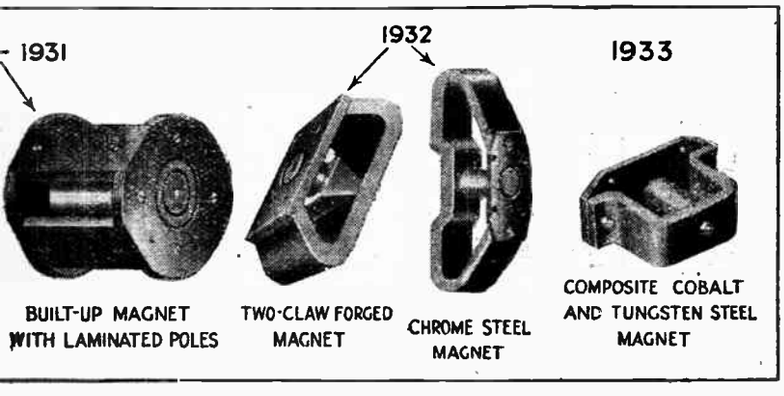
The Future

With a few minor improvements the small, low-priced, permanent magnet moving coil may be regarded as having reached finality. The advent of quiescent push-pull amplification will ensure its survival for some time to come, for by this means we can supply the power necessary to work it satisfactorily from battery-operated receivers. It is now time that manufacturers turned their attention to the requirements of the connoisseur of high-quality reproduction. Wider frequency response, freedom from harmonic distortion, and better transient reproduction are required, and it will be interesting to see in which direction future devolpments will move. The possibilities of the single unit coil-driven cone have now been fully exploited, and it is probable that dual or triple units may be required to cover a wider frequency range. Under the stimulus of talking pictures the horn loud speaker has been brought to a high state of efficiency, and acoustic output up to 50 per cent. of the electrical input power are not uncommon. The experience gained in this field has not yet been applied to domestic broadcast reproducers, where efficiencies of the order of 1 or 2 per cent. are still accepted without demur. Exponential horns of large flare diameter suitable for frequencies down to 50 cycles are not suitable for use in small rooms, but there seems no reason why a cone diaphragm moving-coil unit should not be used for the lower half of the musical scale, and a short coil-driven exponential horn designed to cover the high frequencies up to 10,000 cycles. Failing the discovery of some fundamentally new principle this would seem to be the logical development of the quality reproducer of the near future.



A future trend? The field magnet in the "Magna" loud speaker compared with the standard Magnavox model.

OF THE PERMANENT MAGNET

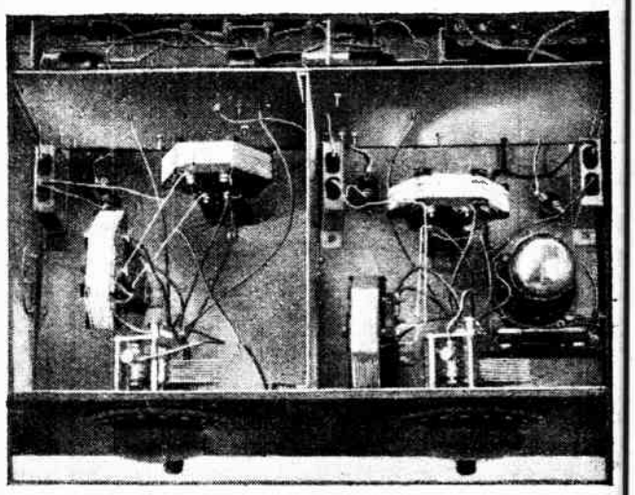


The H.F. Amplifier

Progress—Past and Present

By A. L. M. SOWERBY, M.Sc.

THE ever increasing demand for selectivity has evolved an H.F. amplifier in which more stages are used, though each has a smaller stage gain, this being the price paid for easier tuning control. For the future the author predicts the extensive use of iron-cored tuning coils and the introduction of the variable-mu pentode in place of its tetrode counterpart.



Part of an early screen-grid set, in which the neutrodyne style of construction was still used. Stage-by-stage screening made ganging practically impossible.

DETECTORS are of several types, but all, without exception, have one common characteristic. None of them will operate satisfactorily unless the signal applied to them is reasonably large. The exact numerical value of the high-frequency voltage necessary to enable the detector to give an audible signal is not, perhaps, susceptible of precise definition, but it is quite certain that the average foreign station delivers to the set a signal that falls far below the necessary intensity. For reception of such stations it is, therefore, essential to insert, between the aerial and the detector, one or more stages of high-frequency amplification.

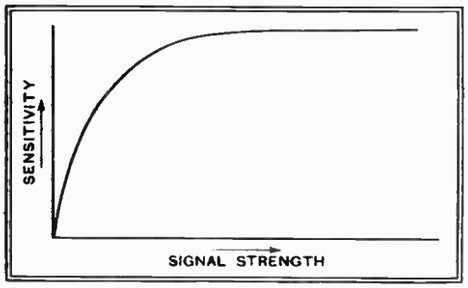


Fig. 1.—Typical sensitivity curve of detector. The sensitivity, though both high and constant for strong signals, is vanishingly small for weak ones.

A valve may be regarded as a device operated by a voltage applied to its grid, and releasing in response to this a corresponding current in its anode circuit. This current, in order to be made available for operating the next valve in the chain, must be caused to set up a voltage by making it pass through an impedance, and this, in the interests of efficient amplification, will naturally be made as high as possible. The only known means of building up an impedance high enough to offer adequate opposition to the flow of high-frequency currents is by the use of a tuned circuit. The history of high-frequency amplification is, therefore, largely the history of the evolution of the tuned circuit and of the valve to be used with it.

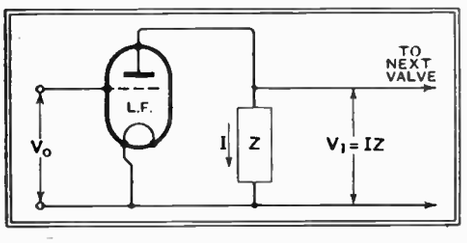


Fig. 2.—Simplified scheme of amplifying stage. The received signal voltage Vo causes a current I to flow in the anode circuit: the voltage V1 dropped by the passage of this through the impedance Z operates the next valve. The ratio V1/Vo is the stage gain.

In the early days of broadcasting the simple tuned-anode circuit of Fig. 3 was the greatest favourite, the valve used with it being of very low efficiency according to present-day standards. The coil L2 was a plug-in coil of one type or another. Owing to the capacity between the grid and anode of the valve no appreciable amplification could be attained before the stage went into self-oscillation. There was, therefore, no incentive to improve the efficiency either of the valve or of the tuned circuit, and for some years practically no progress at all was made.

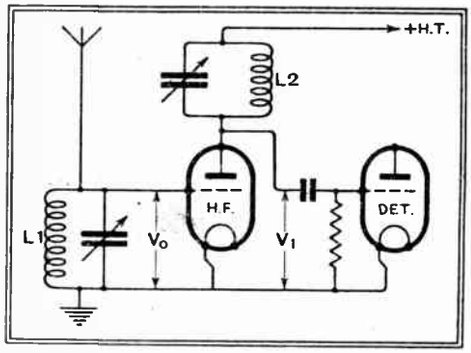


Fig. 3.—A practical interpretation, on 1924 lines, of Fig. 2. This is the "tuned anode" circuit. Note that H.T.+ is earthed for signal voltages so that the voltage V1 exists across L2.

The introduction of the neutralised stage, in which the anode-grid capacity of the valve was balanced out in some such way as is indicated in Fig. 4, marked the beginning of true amplification at high frequency, for it then became possible for the first time to take advantage of valves and tuned circuits of high efficiency. Much work was done at this time, both on valves and coils, coils especially coming in for a great deal of attention. Their importance was enhanced by the fact that the valves at that time in use would only give really satisfactory amplification when the tuned circuit following them had the lowest attainable losses. Very carefully made high-frequency transformers, with secondaries of Litzendraht on formers of large diameter, were the order of the day. A gain of forty-five times in a single stage was attained in the "Everyman Four" receiver (1926), and later receivers of similar pattern gave stage-gains running up as high as sixty times, the increase being due to improvement in valve characteristics.

Advent of Ganged Tuning

The arrival of the screen-grid valve, in which the anode-grid capacity is reduced to trifling dimensions by the interposition of the screen, led, though not immediately, to the disappearance of the neutralised triode stage. At first the development of the amplifier proceeded on the old lines, tuned circuits of the customary very high efficiency being used, and yielding, with the new valve, unprecedented amplification. In some cases the resulting gain was so high that it was necessary to resort to neutralisation even when using a screen-grid valve, as in the "Record Three" receiver (1929), in which a gain of 500 times in a single stage was attained.

Up to this time the use of more than two tuned circuits in a receiver had been exceptional, but the continually rising power of transmitters now began to make higher selectivity necessary. The increase in the number of tuned circuits required for this resulted in the appearance of sets with three, or even four, tuning dials, making them quite unfit for operation by

The H.F. Amplifier—

any but an expert. The next step, which began to be seriously considered early in 1930, was to link all the tuning condensers together on a common spindle and drive them from a single knob.

The Position To-day

As soon as this method of tuning became popular it was found necessary to abandon the high-efficiency tuned circuit, for these require a deadly accuracy of tuning that can only be attained with individual tuning dials. The earlier type of construction, in which large screening-boxes were used, each enclosing a complete stage with coil, tuning condenser, and wiring, was no longer necessary when coil efficiency was reduced, and it was found that coils individually screened in metal containers, though poor compared with the coils of neutrodyne days, could be made as efficient as is compatible with ganged tuning. The development of these led to the production of the multi-section gang condenser used to-day, and to the final emergence of the style of set-construction using screened components that now is almost universal.

Where do we stand to-day? What have we gained, and how much have we lost, in this complete metamorphosis of the high-frequency side of the receiver?

Quite evidently very much has been gained in convenience, both of construction and operation. One may say that selectivity, too, has been enhanced, because a receiver with three or four tuned circuits has become a practical proposition only since the introduction of ganging.

From the point of view of amplification per stage, modern practice is not particularly impressive. Nor does it need to be, for the demands of high selectivity have necessitated extra tuned circuits, with the result that an extra screen-grid valve is used in all ambitious sets to provide the necessary coupling between the extra circuits. We use, in fact, two stages of amplification as against the single stage that would have been used a few years ago in a set of similar pretensions. Consequently, the gain between aerial and detector is more, not less, than in the receiver of earlier days; it is more, even, than could be squeezed out of a single stage to-day by the combination of the most refined tuned-circuit technique with the most efficient of modern valves.

A set designed on the lines popular in 1929, but equipped with modern valves, would contain one stage only. The gain between aerial and detector would probably be less than 350 times, and could hardly exceed 1,000 times even with construction of the most meticulous laboratory standard. The selectivity would be that of only two tuned circuits, which, though of high efficiency, would not give overall tuning so sharp as three less ambitious coils. Ganging would be so difficult as to be impossible, tuning less sharp, and sensitivity lower on the older design, while the saving of a valve and its associated components would certainly be insufficient recompense for the extra cost of the more elaborate screening required and the vast amount of additional work in construction. In addition, the merely moderate selectivity of the older design, being due to two extremely sharply tuned circuits, would be accompanied by more loss of high notes than is involved in the higher selectivity of the modern set, with its three or four more heavily damped coils.

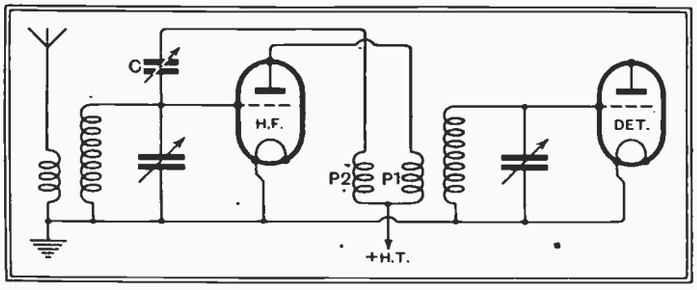
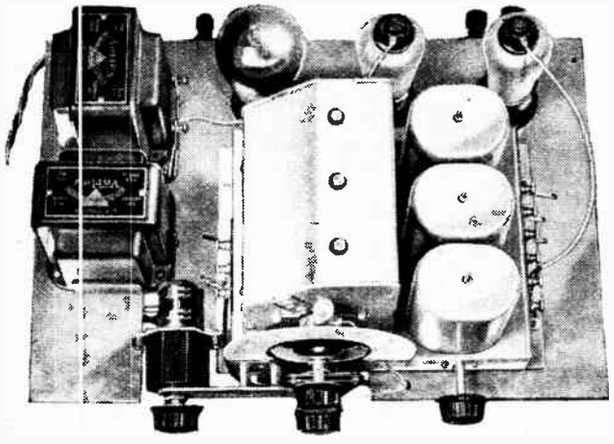
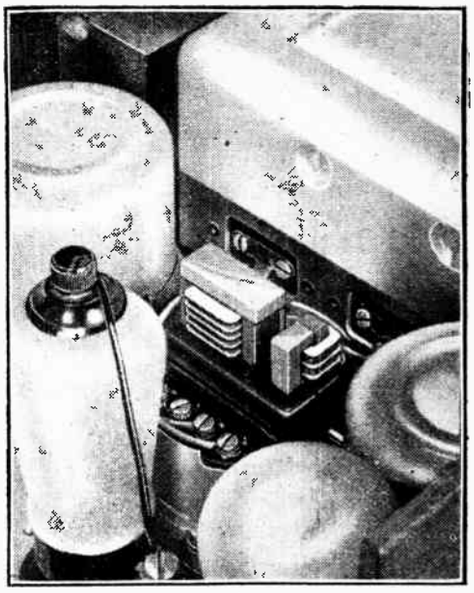


Fig. 4.—A typical neutralised stage. The voltage across P1 feeds energy back through the valve to the grid circuit, but this is balanced out by the energy fed from P2 through the tiny condenser C.



A typical modern layout, with multi-section gang condenser and screened coils as a single unit.

On balance there can be little doubt that the modern trend, which is to rely upon the valves for adequate amplification rather than upon the coils, and using two stages in preference to squeezing the last ounce of amplification out of a single stage, has everything in its favour. In this connection it must be remembered that the efficiency of modern valves is so high that the gain yielded by a screened-coil stage amounts, if tuned anode or tuned grid is used, to well over 100 times in a mains set and some 60 to 70 times in a set using the less efficient battery valves. When a step-up transformer or tapped coil replaces tuned anode some amplification is deliberately sacrificed in the interests of additional selectivity, but the gain per stage that remains still exceeds that of which we were vastly proud only a few years ago.



Portion of Ferrocart III receiver lately described in this journal, showing iron-cored coils to which its high selectivity is due.

In a word, the position is that in taking advantage of the efficiency of the modern screen-grid valve it has not been used as a means of pushing stage-gain up to record-breaking figures. Instead, we take our profits in the form of convenience and simplicity of construction, as ease of operation through ganging the tuned circuits, and as selectivity through the increased number of tuned circuits that can be handled in a ganged set.

Prophecy is notoriously dangerous, but it would seem that for sets demanding moderate gain and selectivity the high-frequency amplifier in its present form will continue to offer the best and cheapest design. For more ambitious sets the new iron-cored coils, as used in the Ferrocart III receiver, offer a means of enhancing amplification or selectivity very considerably indeed, though their characteristics inevitably require a high standard of accuracy in ganging. In the most ambitious sets of all the complexities of the tunable amplifier become so great that the fixed-tune amplifier of the superheterodyne provides the most practical solution.

In valves, present indications are that a drop rather than a rise in efficiency is the probable future trend, though the variable-mu screened pentode, now popular in America, may be introduced in this country, and may offer some modest improvement over the variable-mu tetrode.

We have seen two high-frequency stages used to do the work of one, and to do it both better and more conveniently. The future may perhaps find us using three quite low-gain stages where now we use two of moderate gain, leading to sets which will be at least as compact, rather more selective, decidedly more sensitive, and probably no more expensive than their counterparts of 1933.

NEWS of the WEEK

New Long-wave Station

A 1-kilowatt broadcast transmitter has begun tests on 1,920 metres at Blaj, in Roumania.

Bach Interval Signal

LEIPZIG'S new interval signal is a gramophone record of the main theme of the great Bach fugue founded on the letters of the composer's name.

Mancunian Chats from Paris?

THE Manchester Chamber of Commerce is considering the question of advertising Manchester and its trades by means of talks from Continental radio stations.

New German Broadcasting Chief

DR. KRUCKOW, the successor to Dr. Bredow as Commissioner of German Broadcasting, has announced his intention of reorganising the service on a non-political basis. Apparently even the German Government is realising that too much official use may be made of the ether waves, the tendency being to lose listeners.

The Crystal Decline

SOME 97 per cent. of Germany's listeners vouchsafed particulars of their receiving apparatus for the purpose of the recent radio census. The results show that 74.8 per cent. of listeners use sets with from one to three valves, while 18 per cent. possess larger receivers.

Only about 7 per cent. now use crystal sets as compared with 16 per cent. two years ago.

Frankfurt's New Relay

TRIER, the new German 2-kW station on the River Moselle, is relaying the Frankfurt programmes on the same wavelength, namely, 259 metres. The fundamental frequency is generated at Frankfurt, and although both stations have valve-controlled tuning forks, that at Trier acts, not as a frequency producer, but simply as a check on the frequencies coming over the line from the main station, eliminating any noises from neighbouring lines. A new 5-kW. station is shortly to be opened at Freiburg im Bresgau, and this, too, will be operated from Frankfurt in the same manner.

Vatican Tells the World

NOWHERE is modern radio more keenly studied than at the Vatican, where the Pope recently inaugurated the new ultra-short wave service to Castel Gandolpho. His Holiness has now been presented with a magnificent radio-gramophone by the Marelli workers of Milan. In accepting the gift the Pope spoke of the great usefulness of radio in the conveyance of personal messages all over the world. Indeed, radio had made it possible for the proclamation of the Holy Year from the lips of the Pontiff himself to be heard in the most distant parts of the earth. Messages of thanks had been received at the Vatican from Peking, Shanghai, New Zealand and San Francisco.

Current Events in Brief Review

"Ultra Shorts" in the Air

"GENERAL FERRIÉ" is the name of a new French airship which will shortly start from Le Bourget on a voyage of wireless research over Equatorial Africa.

The special problem to be tackled by this flying laboratory is the use of ultra-short waves in aerial navigation.

Empire Broadcasting on a Film

MR. M. A. WETHERELL, F.R.G.S., proposes to apply the acid test to Empire broadcasting during his forthcoming expedition through Nigeria and the Cameroons. The object of the expedition is to follow the route taken by Livingstone and to make a film entitled "Queen of the Okoyong." The explorer will take with him a standard Marconiphone 255 portable superhet, and during the trip it is intended to make a sound film of a party picking up Empire broadcasting on the set, reproducing the signal on the sound track of the film.

This film, which should demonstrate very effectually the possibilities of reception in the African Zone, should help to bring home to English cinema audiences the thrills of picking up the Mother Country in the heart of the jungle.

Radio and the Music Trade

WIRELESS, which was to ruin the piano and organ industry, seems to have had an opposite effect in France, where M. Fernand Oury, president of the Piano Manufacturers' Syndicate, declares that wireless and the gramophone have benefited the music trades by their helpful propaganda.

The effect has been similar in this and other European countries.

How Inventors Work

ONE of the most impressive tableaux at the Daily Mail Ideal Home Exhibition will be that of Senatore Marconi at work in his cabin on his yacht *Elettra*. Visitors will also see Michael Faraday in his simple laboratory in Albemarle Street. These tableaux will form part of a special feature designated "Rooms of the Scientists."

The Exhibition opens at Olympia, London, W.1, on Wednesday, March 29th.

Nice Protests

ALL Nice, according to a correspondent, is indignant at the refusal of the French Postmaster-General to permit the use of a land line between the Juan-les-Pins station and a studio which has been established in the great Riviera resort. The P.M.G. recently forbade the use of a line for relaying the Nice Carnival through the Juan-les-Pins station and thence to Poste Parisien. The Deputy-Mayor of Nice, supported by full-page newspaper headings, has sent a solemn protest to the French Government.

A THOUGHT FOR NEIGHBOURS? Violin practice which only the executant can hear is made possible with the Vierling electric violin, which can be played through a valve amplifier and headphones. Two magnetic pick-ups are used for the strings and another for harmonics. This instrument may shortly participate in an all-Europe electric music broadcast.

How They Listen

EXACTLY 16,809,562 homes in the United States were equipped with wireless sets on January 1st last, according to a special trade survey, constituting 56.2 per cent. of the total number in the country. There has been an increase of 4,760,800 in three years.

The District of Columbia claims the highest percentage of set owners, with 88.7, while New Jersey and Rhode Island follow with 83.1 and 82.1, respectively. New York can claim 79.4 per cent. of its homes as radio-equipped.

No Tax

THE adversaries of the wireless tax in France appear to have gained the first round in the contest, for the proposed taxes on crystal and valve sets no longer figure in the forthcoming budget.

After the Truth

WHAT caused amateur radio? What are its effects on the community as a whole? These questions form the substance of a survey now being carried out by the Sociology Department of the University of Minnesota in co-operation with the American Radio Relay League.

Indestructible "Mike"

A NEW microphone which will stand the assaults of the most temperamental artistes, which will come up smiling after being deliberately thrown on the floor or immersed in water, has been designed by the Brush Development Company of Cleveland, U.S.A. The sound element is a Rochelle Salt cell.

We now await a microphone which will *not* stand up to everything that is said to it.

Switzerland's "Italian" Studios

THE studios at Lugano, which are intended for use with the new Swiss regional station at Tessin for the Italian-speaking population, are already being employed for certain programmes from the two existing stations in Switzerland. This will explain why listeners may occasionally hear Italian spoken from either Beromünster or Söttens.

D.C. to A.C.: Compensation for Consumer

A JUDGMENT of special interest to wireless users in districts where the electricity supply is changed from D.C. to A.C. was given last week by Mr. Justice Goddard in the King's Bench Division.

Mr. Lakeman sought compensation from the Chester Corporation owing to the change over to A.C., which rendered his battery-charging plant useless. The Corporation, however, contended that they were called upon to pay only the cost of altering the consumer's apparatus, and that if, as here, the apparatus was one which could not be altered they were not obliged to pay anything, except perhaps the scrap value of the apparatus rendered useless. The Corporation had, in fact, offered the applicant £2 as the value of his old apparatus.

His Lordship, in giving judgment, read the Corporation's arrangement with the Electricity Commissioners as meaning that the Corporation must put the consumer into the position of having the same facilities for carrying on his business with the new alternating current as he had had with the old direct current.

The applicant was given judgment for £41 17s. 6d., including £7 due to interference to his business during the process of changing, together with costs.

DETECTION

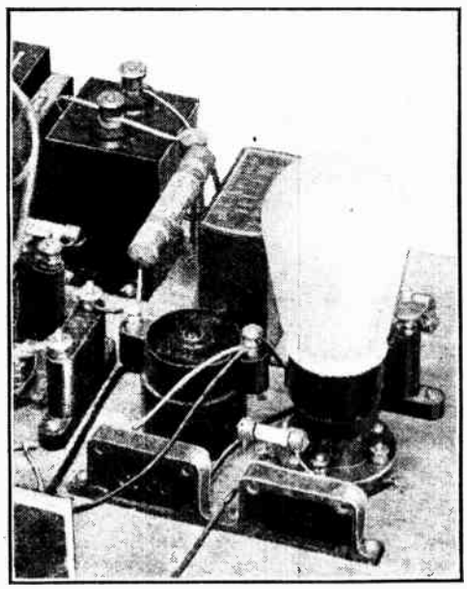
Yesterday and To-day

THE history of the detector takes us back 40 years, and tracing its development to modern times makes interesting reading. The detector has passed through many vicissitudes, from the coherer to the Fleming diode and thence to the triode and tetrode. Strangely enough, the diode is returning to favour.

By M. G. SCROGGIE, B.Sc., A.M.I.E.E.

THE design of receivers has passed through so many changes during the last forty years (Yes, dear newcomer, *forty*) that only one element has remained common to all—the detector. Even tuning was not incorporated until Sir Oliver Lodge thought of it in 1898. The detector is of first importance.

The name detector is perhaps not quite the best that might have been chosen; that is to say, it does not in itself declare very clearly its purpose in life. So, first of all, let us consider what the perfect detector ought to do, so that we may be in a position to know how nearly perfect (or otherwise) are the detectors we happen to have got.



A typical modern power-grid detector stage with associated components.

It is, of course, part of the ABC of radio that the sound waves to which the human ear is responsive must be borne on carrier waves of much higher pitch (or frequency, or shortness of wavelength) in order to be transmitted over great distances, and that at the receiving end something must be used to respond to the carrier waves and to present them to our human sense in something approximating to the original form.

This process is accomplished, in practice, by rectifying the carrier wave; that is, suppressing one-half of every wave, so that the variations in height of, say, the upper halves, which carry the desired sounds, are not neutralised by the equal and opposite variations of the downward halves.

Some Antique Methods

There are very many types of rectifier, but some of them are, like our ears, unresponsive to radio-frequency waves, and are thereby ruled out. The ideal, clearly, is a rectifier which is like a turnstile; letting the approved positive half-waves through without any delay, deduction, alteration, or reluctance, and presenting a complete and uncorruptible barrier to each and every negative half-wave. This perfect separation of the sheep from the goats is never obtained in this imperfect world. The sheep are unable to get through without leaving a little of their fleece behind, and a certain amount of goat hair is found among the wool.

This would not matter so very much if the imperfection were consistent, because the resulting loss could (since the introduction of the valve) be easily compensated by a little extra amplification; but a common failing of rectifiers is a reluctance to operate the turnstile smartly when only weak applicants for admission appear, and the result is that when the carrier wave is feeble the rectified current is very feeble indeed, and when the carrier is strong the increase in rectified current is out of all proportion stronger. A "square-law" rectifier is of this type, but some are even worse still. The "straight-line" or "linear" detector is one in which the rectified output is exactly proportional to the carrier-wave input.

In Fig. 1, A is a square-law characteristic, B is a fairly common type which begins badly but straightens out later, C is a perfect linear type, and D is also linear, but better than C because it is steeper, i.e., it introduces less resistance (loss) than C.

Leaving the more antique forms of detector unmentioned (but see Fig. 2), the crystal was very simple, cheap, and compact, but had curve A tendencies, and, moreover, was decidedly temperamental and moody in character. Hence the whisker-tickling that seemed inseparable from it. The first valve, the Fleming or diode type, now returning to popularity, was much more certain (after manufacturers had mastered the art of vacuum) and was a B-type detector, which could be made to give very good freedom from distortion by making the normal carrier strength run well up the straight portion. When introduced in 1904, however, people were not interested in quality of reproduction, but in being able to hear anything at all; so when De Forest put a third electrode in the valve, so that it could be used as a stage of amplification as well, it was adopted *nem. con.*, and ever since then we have been accustomed to expect from a detector not only detection, but amplification, too. A good deal of confusion of thought has resulted. Thus a valve which happens to have a high amplification factor is called a good detector, whereas it may be vastly inferior in that respect to another valve in which the rectifying properties are not so well boosted by the amplification. That is a parable of life.

Grid *versus* Anode Detection

The two competing types of valve detector-cum-amplifier—anode-bend and grid-leak—are so well known as hardly to need description. In the anode-bend type the grid is biased negatively so as to prevent grid current from flowing in any circumstances, and to make the anode current small until the carrier wave is applied. It is usually a close approxima-

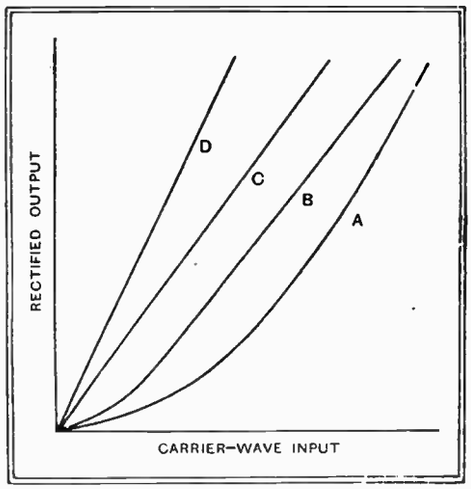


Fig. 1. Types of detector characteristic. A represents square-law, B is a common type which starts badly but ends up well, C is linear, as is also D.

tion to a square-law rectifier, though when used in the American fashion, with a very large input, it tends to curve B type. Rectification is not complete, nor is it free from distortion, but owing to the absence of grid current it was supposed

Detection—

that it introduced very little loss on the input side. It was found later that the advantage in this respect might often be nullified under working conditions by reflection from the anode circuit back through the interelectrode capacity of the valve ("Miller effect"). And when in the early days carrier waves were weak, this type was very insensitive, as one would judge from curve A.

So the grid-leak type in which the grid and filament forms a diode rectifier and the resulting output is amplified by the valve as a whole became popular, because it is linear almost from the start, and therefore sensitive to weak as well as to strong waves. Then, too, the conditions of operation lead to the amplifying action being more effective than in the anode-bend type.

Screen-grid Valve as Detector

But as stations became more powerful, and pre-detector amplifiers more effective, the grid-leak detector got a bad name for distortion. Actually it was a perfectly good detector all the time, but the amplifying department was failing to cope with the increasing rectified outputs.

Furthermore, the new need for selectivity found a weak spot in the grid-current loss, which damped the tuned circuits. So the anode-bend type swung once more into favour.

Then articles in *The Wireless World* explained clearly what was really wrong with the grid-leak type, where the causes of distortion lay, and how they could be eliminated, and in this country, at least, the anode-bend was finally thrust into outer darkness. It is now used in America.

The distortion due to overloading was overcome by seeing that the valve was given a generous supply of power, so that it could amplify under the somewhat restricted conditions imposed by the necessity for doing two jobs at once. And the distortion due to the grid leak and condenser not acting smartly enough at the high audible frequencies was even more simply overcome by selecting sensible values for them, which are now more or less standardised at 0.25 megohm and 0.0001 mfd. respectively.

For a time, and provided that things were so arranged that the mean carrier-wave amplitude applied was just right, it did (and still does) quite well under the name "power-grid" detector.

If the amplitude is too small it runs into the lower bend and distorts. If it is too large it demands impracticably large anode current and voltage to handle it without overloading. So it must be just right, like the middle-sized bear's bed.

Latterly the screen-grid valve has achieved some popularity as a detector; strictly speaking, it is not as a detector that it is judged, but as an amplifier. It may be used as an anode-bend, grid-leak, or power-grid detector, and as such is very much the same as an ordinary triode. But the amplification may be very much greater. Whether this is worth the somewhat greater cost, and whether one can make any good use of the amplification when one has got it, depends on circumstances. What is an unquestionable merit is that the Miller effect is absent, thanks to the internal screening, and so the valve throws much less damping and mistuning on the previous tuned circuit—a valuable concession when selectivity is at a premium.

All this time the poor goats have been kept waiting outside. But some kindly disposed enthusiasts who can spare the cost of an extra valve turnstile adopt a method for turning the goats into sheep (by means of a centre-tapped coil) and pushing them in through a second turnstile, to swell the useful flock. This method is alluded to in technical circles as push-pull detection, and, besides the advantage of doubling the output, it also renders largely unnecessary the usual filter or by-pass to waylay the residual H.F. currents left over after rectification has taken place.

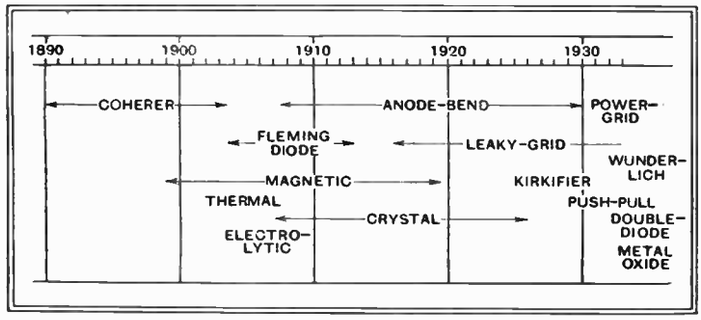


Fig. 2.—Chart showing approximately the periods during which various types of detectors flourished.

The Birth of A.V.C.

And that is about where we stood until recently. Now there are again signs that important developments are afoot and that the old order perisheth. Valves are improving, so that the necessity for a large step-up between the H.F. amplifier and the grid of the power valve no longer exists. Any large amplification between these two, such as is given by the modern rectifier-cum-amplifier, may be a positive embarrassment. The H.F. amplifier can put out ten, twenty, thirty or more volts, whereas the output valve gives us its two or three watts in the loud speaker with very much less than this applied to the grid. So history repeats itself yet again in the thirty-year-old Fleming diode, which is very nearly a linear detector when worked at a sufficiently large amplitude.

This is rendered all the more essential because broadcasting stations now often modulate up to 100 per cent. or near it, and unless the curved portion of the characteristic is a very small part of the whole, serious harmonic distortion is introduced.

Then, again, automatic gain control (it should *not* be called *volume* control, because the very object is to keep the volume constant, whereas a volume control is used to vary the volume) is now a practical proposition, and hinges largely on the ability of the detector to feed back something like twenty or more volts to control the H.F.-amplifier valve grids.

Metal Rectifier Possibilities

This can be and is done by a diode (push-pull or full-wave, as in the Murphy superhet), but there are innumerable schemes, with and without special valves, many of which have been described in *The Wireless World* in past months.[1] The Wunderlich valve is an American idea with this in view, consisting of a double-diode and triode amplifier in combination, retaining the merits of them both.

But why keep talking about valves? Thirty years is a long reign in the radio kingdom, where revolutions are constantly breaking out in the columns of the lay press, and our friend the metal-rectifier is already appearing as a possible rival.[2] He may take some time to establish his claim, so it would be unwise to withdraw loyalty to the valve dynasty prematurely. But it has been shown that, by suitably modifying the construction of the metal-rectifiers with which we are familiar in power units and battery chargers, it is possible to overcome the disability which has hitherto confined them to very low frequencies. As far as the more elaborate superhets are concerned it may be expected that metal-rectifiers will score heavily in the near future. They have incontrovertible advantages for this particular work. But for "straight" sets and those of the less "powerful" types no extensive change in technique seems to be indicated at present, except, perhaps, the use of multiple valves which include a diode. Existing types are perhaps more numerous than ever, and a choice can be made to fit in with any set of conditions.

Whether diode- or metal-rectifier, we are now again able to judge detectors on the old basis, unmixed with amplification. And, according to the standards of perfection laid down at the start, we are nearer the ideal, both as regards efficiency and absence of distortion. The latter we certainly want; the efficiency need hardly be pressed further, because we have amplification enough and to spare. Perhaps the last word will be with convenience and cost.

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[1] "Automatic Gain Control," Sept. 23rd and 30th, 1932; "Automatic Volume Control—Is It Worth While?" Aug. 12th, 1932; "Practical Automatic Volume Control," Jan. 6th and 13th, 1933.

[2] See "The Westector," *The Wireless World*, March 3rd, 1933.

BROADCAST BREVITIES

By Our Special Correspondent

New Dance Band Scheme

"DANCES from the Shows" may be a forthcoming feature by the B.B.C. Dance Orchestra. I hear that Henry Hall is working on the idea following the enormous success of John Watt's "Songs from the Shows"—a feature which always brings an appreciative mail to Broadcasting House.

Famous dances from stage successes of the past decade should provide material for many programmes by the B.B.C. Dance Band.

Craigantlet?

A CORRESPONDENT who has been watching the B.B.C. mobile transmitter, now seeking a site for the Ulster Regional transmitter, tells me that the vehicle is quite firmly entrenched on the Hollywood Hills close to Craigantlet—the famous motoring test hill.

The news does not surprise me, for I happen to know that the B.B.C. engineers have been casting acquisitive eyes on this Craigantlet site for a considerable time.

Secrecy Over Droitwich

Nothing, however, has been decided upon in regard to the Ulster site, and I can forgive the B.B.C. for reticence in the matter, but why the secrecy over the Droitwich site? Everyone knows that Wychbold, near Droitwich, was chosen for the new high power station, but we have yet to receive the official announcement that the site has been bought. Considering that the purchase was effected several days ago, the announcement seems overdue.

After all, you (if licensed) and I both helped to pay for it.

Hush-Hush Plans

The B.B.C. draughtsmen are now busy on the Droitwich plans. The general feeling is that something very much out of the ordinary in station design is called for to house the B.B.C.'s most powerful transmitter. Within the next few weeks the plans may be published, at least in part, but at the moment everyone is sworn to secrecy.

Home of Mystery

Broadcasting House is a home of secrets; everyone walks guiltily on tip-toe. As one man put it to me, "the place is like a dook's mansion with the dook dead upstairs."

Coming Shortly

Western Regional will probably disturb the ether before the end of the month with its initial tests, though the transmitter is not expected to begin a regular public service until June.

Then, and not till then, Western National will begin testing.

Will the Waves Clash?

I wonder whether there will be some mutual interference between the London and Western Nationals? Both will be using the same wavelength, viz.: 261.1 metres, and although the engineers are fairly confident that no heterodyning will take place, I shall feel happier on the point when their theory has been proved in practice.

The argument is that London National sends a weak signal westwards. But suppose Western National sends a strong signal eastwards?

A Musical Play

"THE Castle on the Hill," to be broadcast on March 14th (National) and 15th (Regional) is a musical play by Denis Freeman and Martin Lubbock, based on the Bolshevist post-war rising in Hungary.

Robert Radford

ROBERT RADFORD, the famous bass singer, whose death occurred last week, was not a frequent broadcaster, but he did appear in studio opera. The last occasion was in November, 1929, when Radford sang at Savoy Hill in the opera "Louise."

The Men in the Tower

PEOPLE who work in the central tower of Broadcasting House are, I hear, beginning to envy workers in underground safe deposits and other comparatively open-air spots. Not only do the B.B.C. music librarians and publishing department labour all day by artificial light, they also breathe only the specially prepared air which is pumped up from the automatic ventilators.

When Viscount Bridgeman, the new vice-chairman of the B.B.C., was making his recent tour of the building, he expressed concern at the conditions under which the "tower people" worked.

They will be released from this Tower of Babel only when the B.B.C. can find extra accommodation outside Broadcasting House.

B.E.B.C.

SOME months ago I suggested a new title for the B.B.C., viz., the British Empire Broadcasting Corporation, and when I hear recurring rumours that Mr. Gladstone Murray, the Information Chief, is being pressed to leave England and supervise Canadian broadcasting, the suggested name seems more and more appropriate.

Empire Posts

I believe it to be Sir John Reith's intention to find Empire posts for as many B.B.C. men as possible, and thus hasten the happy day when broadcasting throughout the Empire will conform to B.B.C. ideals even if it does not accept B.B.C. control.

Wait and see!

Sopranos in Musical Squabble

GORDON McCONNEL will give us more studio opera on March 17th (National) and 18th (Regional), the programme consisting of two miniature works by Mozart. The first, "Bastien and Bastienne," which was written at the age of twelve, is a simple pastoral. More sophisticated is "The Impresario," the second opera of the evening, which Mozart wrote eighteen years later. It is really a quarrel, set to music, between two jealous sopranos.

MAKING OUR FLESH CREEP. Scene in the B.B.C. "Effects" room at Broadcasting House, where sounds of clanking chains amid the whine of a sawmill are produced by specialists, who check up the results on headphones.

Talking by Numbers

"RADIOCRACY" has been much talked of recently, and its supposed horrors have been well aired in public places, but I am not sure that those who have laughed at the notion are the fellows who know best.

I write in this morbid strain after a glance at "Inquiry Pamphlet No. 3," published by the Central Council for School Broadcasting, and dealing with "The Evidence Regarding Broadcast Speech Training Collected by the English Speech Investigation Sub-Committee." (Price 6d.)

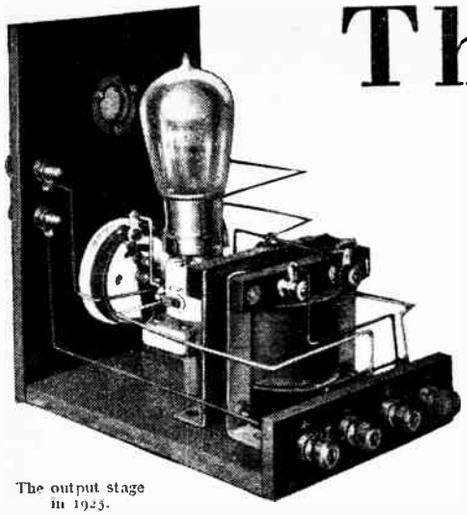
New Speech Outfits

The report tells of the "speech drill" to which groups of children were submitted after hearing the words pronounced B.B.C. fashion on the loud speaker.

Later, gramophone records were taken of words uttered by classes which had undergone the régime and by classes which had not. As Professor Cyril Burt records, "the main result of the experiment—a superior improvement in the class trained by wireless—was statistically reliable."

The aim of the courses is to give the children "new speech outfits"—a commendable aim, but is it really necessary that the B.B.C. should have a finger in the pie?

When all people talk alike it will be a short step to all thinking alike.



The output stage in 1925.

The Output Stage

Have We Reached Finality?

By W. I. G. PAGE, B.Sc.

WHEN we come to examine the output stage of the modest battery receiver we find that no change in the circuit linking the speaker to the last valve has taken place since the early days of broadcasting. It was with the introduction of mains valves that the output circuit began to become somewhat complicated, and to-day it forms quite a specialised subject. For the future the author holds out high hopes for class "B" amplification.

THE output stage crowns the set, and in this sense all other parts are subservient to it. The high-frequency stages, the detector, and perhaps the first L.F. valve are all engaged in providing the final stage with something to work upon; if this something is faulty the output stage can magnify the fault enormously. Alternatively, it is little use designing a linear detector if the output valve is either incapable of accepting its output or is not properly matched to the loud speaker. The last valve and its associated components are designed to deliver power, and thus differ from the other stages, all of which are voltage-operated.

Having a technique of its own, it is small wonder that the output stage has attracted the attention of the specialist, whose efforts have been rewarded by extraordinarily rapid developments in output-valve design, although, strange to relate, in the smaller type of receiver the circuit linking valve to loud speaker has not changed since the early days of broadcasting.

Feeding the Loud Speaker

In discussing the evolution of the output stage we need not consider any circuit more primitive than that of Fig. 1 (*a*), where the simplest possible arrangement is shown. The loud speaker is connected directly in the H.T. positive lead, and the results are satisfactory enough in battery sets where currents of only small value are flowing. This circuit, which has stood the test of time, is not likely to be superseded where low cost is of primary consideration and where no attempt is made to change from battery feed. However, if an electric lighting supply becomes available, there is a temptation to convert the set to all-mains operation in gradual stages—the first purchase being an H.T. eliminator.

The circuit of Fig. 1 (*a*) now becomes unsatisfactory, and the well-known choke-filter scheme must be pressed into service. This confers the advantage of isolating the speaker from D.C., and high voltages can be used with impunity. Furthermore, the choke serves to decouple the output circuit, and motor-boating is prevented even when the H.T. source has a high internal impedance.

Up to a few years ago practically all the speakers on the market were of high resistance and matched the average output valve automatically; in fact, makers of speakers and valves arranged that the impedance of their respective products were mutually suited. But with the advent of the moving-coil instrument, which has come to be standardised with a robust low-resistance speech coil, matching transformers have become essential. The simple output circuit with which we started is now growing, and contains a choke-filter fed output transformer on the assumption that an H.T. eliminator and a moving-coil speaker have been pressed into service.

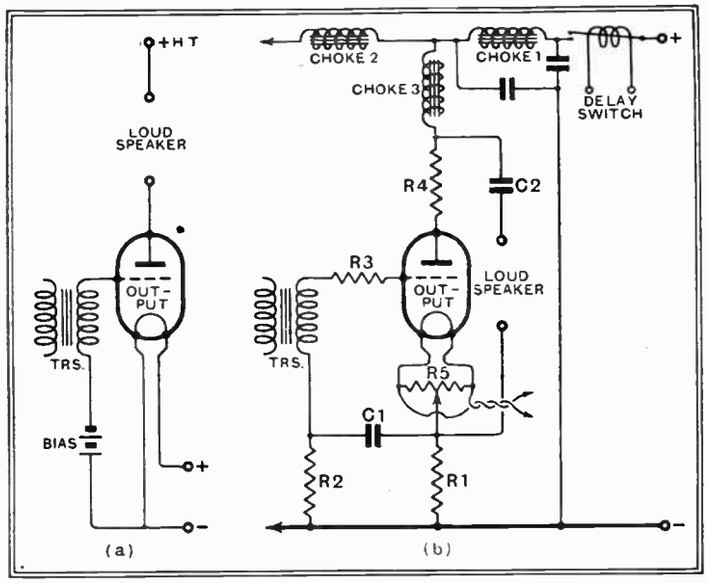


Fig. 1.—(a) The simplest output stage which has stood the test of time. A more elaborate circuit for a modern mains valve is shown on the right (b).

The next logical development is the replacement of the L.T. accumulator by a mains transformer to feed the filaments, but this would hardly be satisfactory unless mains valves and automatic bias were introduced simultaneously. As the mains voltage always fluctuates, self-bias gives a measure of automatic compensation of anode current so that, apart from its convenience, this method of deriving grid potential has electrical advantages as well.

New Technique

Unfortunately, as soon as self-bias is included in the output stage there is a risk of loss of bass unless the grid circuit is decoupled. Here more complications arise as the majority of mains valves are liable to be short-lived if a resistance of appreciable value is connected in the grid-return circuit. A sudden loud passage of music or an atmospheric will cause an excursion into grid current, and the valve may be "triggered" into a state of self-oscillation. The greater the value of the decoupling resistance the more pronounced the effect; we therefore have to be satisfied with some 50,000 ohms which is reasonably effective.

The efficiency of mains valves has increased at such a prodigious rate that it is now possible to obtain sufficient loud speaker volume for the largest of rooms when using a single output valve fed directly from the detector. A certain price has to be paid for such high sensitivity, and various precautions must be taken if no unwanted effects are to occur. It is possible in the larger type of valve that the interelectrode capacities, together with the inductance of short leads to the grid and anode, may cause resonance at a wavelength as low as 3 metres. Parasitic oscillations at this frequency

The Output Stage—

may completely paralyse the valve; non-inductive resistances should therefore be connected to the grid and anode terminals of the valve-holder.

The output circuit is now becoming more elaborate, and it is represented by Fig. 1 (*b*). Here R1 is the automatic bias resistor, R2 C1 the decoupling, and R3 and R4 represent the anti-parasitic resistances just referred to. There is choke-filter feed (CH3.C2) to the loud speaker, and the field coil of the latter is used to provide extra smoothing (CH2) for the H.T. supply. With the delay switch to safeguard condensers and other equipment from the effects of surge voltages when switching on, the modern output stage is now fairly complete.

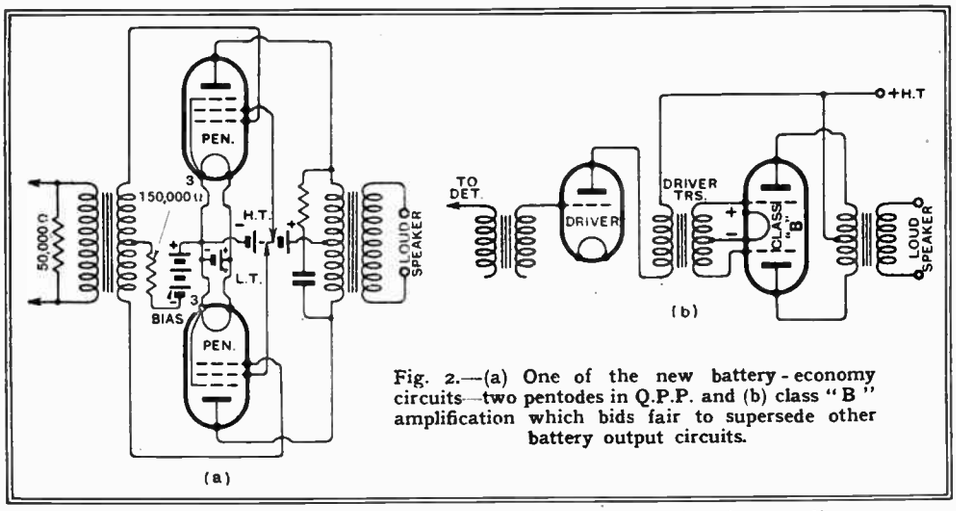


Fig. 2.—(a) One of the new battery-economy circuits—two pentodes in Q.P.P. and (b) class "B" amplification which bids fair to supersede other battery output circuits.

The tremendous strides which have been made in output-valve efficiency are best shown by referring to Table A, which gives the figure of merit of a number of output valves starting with the DE5A valve. The measure of efficiency or sensitivity is defined as the watts energy delivered to the speaker for a given signal voltage applied to the grid.

And what of the future? Prophecy is always dangerous, but it can be stated without fear of contradiction that next season's battery sets will be equipped with one of the new "battery economy" circuits, an example of which has become so popular of late. With the high cost of H.T. current, when mains are not available, the new systems are particularly attractive as there is practically no drain on the battery until a signal is received, and then the current is proportional to the volume of sound from the loud speaker.

TABLE A

Valve	Sensitivity*
DE5A	0.9
DE5	1.8
P625	2.7
PX4	4.4
LP2	8.3
ML4	17
AC/Pen	40
41MP	51

*mW per volt² R.M.S. input.

If the transmissions from the broadcasting station were continuously modulated to 100 per cent. the H.T. consumption would be so heavy that no saving would be shown over the more orthodox methods of amplification. But during talks there is only spasmodic modulation, and with the number of intervals that take place there is, of course, no rise in current; in fact, the *effective average* modulation over a long programme would probably not exceed some 15 per cent. It is this low figure which accounts for the startling economy claims made for Q.P.P.

This push-pull output scheme, the circuit of which is given in Fig. 2 (*a*), gives of its best when two pentodes of the Pen.220A class are used, and "mains output" can be obtained for a surprisingly low working anode current. There is, however, this disadvantage; not only is a large bias voltage required, but some arrangement must be made to discharge the bias battery in sympathy with the H.T. battery otherwise incorrect working conditions may result. The difficulties are not insuperable, and careful consideration of the total H.T. consumption of the set will dictate the best value of shunting resistance to use across the grid battery.

One advantage of Q.P.P. is that with nearly all the valves suitable for this class of amplification, the detector can feed the output stage through a high-ratio transformer without any intermediate valve.

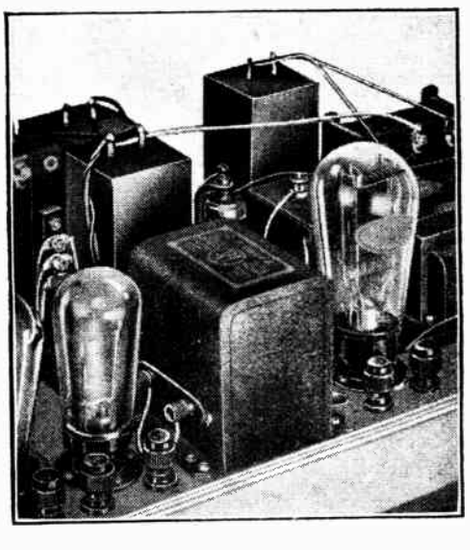
A serious competitor to Q.P.P. in the form of a double output valve is about to find its way on to the market. It has already been extensively used in America, and has come to be known as Class "B" amplification. Here the elements of two triodes are mounted in one bulb, there being pin connections to two anodes, two grids, and a single filament. These triodes, which, in any theoretical discussion, must be considered as separate entities, are used back-to-back in a push-pull circuit, and the signal voltage is allowed to encroach not only into the lower bend of the characteristic, but also into the grid current zone—an area which has hitherto been avoided at all costs in an amplifying valve.

New Output Scheme

There is quite a lengthy part of the "curve" in the grid current zone which is straight, but until this new form of output stage was investigated no one dreamed that it would be put to any important use. Most intriguing of all is the type of triode used; owing to cancellation of the curvature effects it is found possible to combine in the single bulb small valves of the detector class, and thus we find ourselves in 1933 in the paradoxical position of reverting to valves which were beginning to be discarded for the output stage as long ago as 1924.

The undistorted output will be nearly twice that from Q.P.P., the double valve will be inexpensive, no grid-bias battery for the output stage is needed (as the valve operates at zero grid potential), and the majority of Q.P.P. components already on the market will be suitable. Thus one's prophecy of popularity in next season's sets seems to be on safe ground. In Fig. 2 (*b*) a skeleton circuit is given.

Class "B" amplification may find application in mains sets, but in this case its qualities are distinctly less attractive, as H.T. current is so cheap. There is also the need for a special mains rectifying valve with better regulation than is possible with the vacuum type.



A modern output stage in a mains receiver. The thermal delay switch resembles a valve and is on the left of the main smoothing choke.

The advantages, however, of using a power stage where the H.T. current drain is proportional to the signal are so great that further valve developments are almost bound to take place sooner or later.

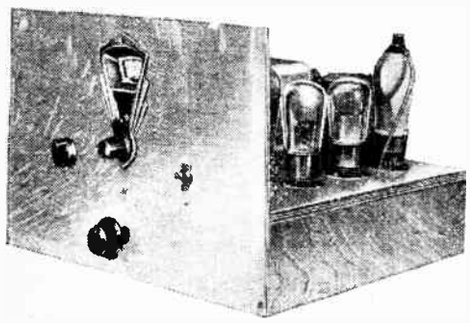
Before any striking advance can be made in output-coupling arrangements we must wait for further loud speaker developments, for it is felt that output-valve technique has outstripped that of the reproducer. Let us leave further prophecy alone and take this opportunity of congratulating the British valve manufacturers, whose present range of output valves is unrivalled by that of any other country.

In Next Week's Issue:—

Adding A.V.C. to the MONODIAL SUPER

A Famous Set now Designed Complete with Automatic Volume Control, or with Instructions for Adding A.V.C. for those who have already Built the Original Model

PROBABLY no refinement in wireless receiver design has ever created so much interest as is being shown to-day in automatic volume control. The advantage of A.V.C. is of the utmost importance to any receiver designed for the reception of distant stations, for it provides constant signal strength on any distant station which formerly came in at varying strength due to the phenomenon of fading. There could be no better set in which to incorporate A.V.C. than *The Wireless World* Monodial Super, and this addition, which we shall describe in next week's issue, puts this receiver still farther ahead of any rival.



Receiver chassis of the Monodial A.C. Super fitted with A.V.C.

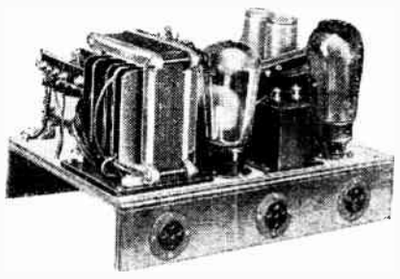
Below we publish a complete list of parts required for those who wish to construct the A.C. Monodial complete with automatic volume control, with a choice of either a 2.5 watts amplifier or a 5 watts amplifier. In addition, for the convenience of those who have already constructed the Monodial A.C. Super and wish to add A.V.C., a list of the additional parts required is included.

A.V.C. RECEIVER CHASSIS

1 Fixed condenser, 4 mfd., 400 v, D.C. test — Dubilier type BB
1 Fixed condenser, 2 mfd., 400 v, D.C. test — Dubilier type BB
1 Fixed condenser, 1 mfd., 400 v, D.C. test — Dubilier type BB
1 Fixed condenser, 0.1 mfd., 400 v, D.C. test — Dubilier type BB
(Ferranti, Formo, Peak, T.C.C., Telsen)
8 Fixed condensers, 0.1 mfd., 500 v, D.C. test non-inductive — Dubilier type 9230
(T.C.C., Telsen)
3 Fixed condensers, 0.01 mfd. — Dubilier type 620
1 Fixed condenser, 0.0001 mfd. — Dubilier type 620
2 Fixed condensers, 0.0005 mfd. — Dubilier type 620
(Ferranti, Loewe, T.C.C., Telsen)
1 Fixed condenser, 0.0001 mfd. — Dubilier type 670
(T.C.C.)
1 Volume control, 250,000 ohms, tapered — Claude Lyons P5-250A
1 Potentiometer, 5,000 ohms — Watmal
(Colvern, Claude Lyons, Rothermel)
1 Semi-fixed condenser, 0.0005 mfd./0.002 mfd. (Formo) — R.I. "Varicap"
1 5-way insulated connector — Wilburn
1 Variable condenser, 0.0005 mfd., 3 gang, screened, superhet. type, with trimmers on the right — British Radiophone
1 Slow-motion dial, for above — British Radiophone
2 Metallised resistances, 250 ohms, 1 watt — Dubilier
3 Metallised resistances, 1,000 ohms, 1 watt — Dubilier
1 Metallised resistance, 2,500 ohms, 1 watt — Dubilier
1 Metallised resistance, 4,000 ohms, 2 watts — Dubilier
1 Metallised resistance, 6,000 ohms, 3 watts — Dubilier
2 Metallised resistances, 10,000 ohms, 1 watt — Dubilier
1 Metallised resistance, 30,000 ohms, 1 watt — Dubilier
1 Metallised resistance, 50,000 ohms, 1 watt — Dubilier
1 Metallised resistance, 75,000 ohms, 1 watt — Dubilier
2 Metallised resistances, 100,000 ohms, 1 watt — Dubilier
1 Metallised resistance, 250,000 ohms, 1 watt — Dubilier
2 Metallised resistances, 1 megohm, 1 watt — Dubilier
(Colvern strip type, Erie, Claude Lyons)
3 I.F. transformers, 110 kc. — Colvern "Colverdynes"
7 Valve-holders, 5-pin — Clix chassis-mounting type
1 H.F. choke — Wearite type HFO
1 H.F. choke — McMichael Binocular Junior
1 Battery cable, 7-way — Harbros
1 Battery cable, 4-way — Bulgin
(Belling-Lee)
1 Set of B.P. canned coils — Varley "Square Peak" BP13
4 Ebonite shrouded terminals — Belling-Lee type B
(Burton, Clix, Eclex, Igranic)
1 Change-over switch — Claude Lyons B.A.T. 729
1 Switch — Claude Lyons B.A.T. 728
Metal screened sleeving — Coltone
(Lewcos, Harbros)
1 Venesta board, aluminium faced, 12in. x 11in. x ¾in. — Peto-Scott
1 Panel, oak faced ply, 14in. x 9½in. — Peto-Scott
Plywood ¾in., screws, wire, systoflex, etc., etc.
1 Screen, 2¾in. x 2¾in., No. 16 S.W.G. — Peto-Scott
Valves: 3 Marconi VMS4, 1 Marconi MHL4, 1 Mullard 164V, 2 Mullard 354V.

2.5 WATTS A.V.C. POWER CHASSIS

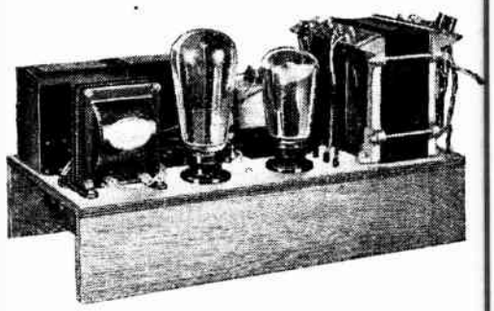
5 Valve-holders, 5-pin — Clix chassis-mounting type
1 Fixed condenser, 2 mfd., 1,000 v, D.C. test — Dubilier type LSA
1 Fixed condenser, 4 mfd., 1,000 v, D.C. test — Dubilier type LSA
1 Fixed condenser, 2 mfd., 500 v, D.C. test — Dubilier type BC or LSB
1 Fixed condenser, 1 mfd., 400 v, D.C. test — Dubilier type BB
2 Electrolytic condensers, 8 mfd. — T.C.C. type No. 802
1 L.F. choke, 10 henrys — Sound Sales
(Ferranti B2)
1 L.F. choke, 30 20 henrys — R.I. "Hypercore"
1 Mains transformer, 210 240 v, 40/100 cycles, 350+350 v, 100 mA, 4 v, 6 amps., centre-tapped, 4 v, 2½ amps., centre-tapped, 4 v, 1 amp., centre-tapped, 1 v, 1 amp., centre tapped, with screened primary — Challis
3 Plugs, 5-pin — Bulgin P3
1 L.F. transformer — Ferranti AF5
1 Metallised resistance, 10,000 ohms, 1 watt — Dubilier
1 Metallised resistance, 50,000 ohms, 1 watt — Dubilier
1 Metallised resistance, 700 ohms, 2 watts — Dubilier
1 Metallised resistance, 1,000 ohms, 2 watts — Dubilier
(Colvern strip type, Erie, Claude Lyons)
1 Venesta board, aluminium faced, 9in. x 12½in. x ¾in. Plywood ¾in., screws, wire, systoflex, etc., etc.
Valves: 1 Osram PX1, 1 Mazda UU120/350.
NOTE.—The type LSA condenser has had its voltage altered; therefore the original LSA or the present LEC type should be used.
NOTE. If a non-energised speaker be used, a 2,500 ohms 60 henry choke will be needed.



2·5 watts power unit for the A.V.C. Monodial.

5 WATTS A.V.C. POWER CHASSIS

1 Mains transformer, primary with earthed screen, secondary windings 400-0-400, 4 v, 6 amps., c.t.; 4 v, 3.5 amps., c.t.; 4 v, 2 amps.; 4 v, 1 amp. c.t. — Parmeko
(Rich and Bundy, Savage, Sound Sales, Tannoy, Bryce, Trix)
2 L.F. Smoothing chokes, 28/14 henrys — R.I. type DY11
(Varley, Bryce, Rich and Bundy)
1 L.F. Transformer, 3½ to 1 — Ferranti AF5
1 Thermal delay switch — Varley type EP17
(Bulgin)
1 Potentiometer, 30 ohms — Claude Lyons, Hum Dinger
1 Power resistance, 2,500 ohms, 10 watts, and holder — Varley type EP38
1 Metallised resistance, 100 ohms, 1 watt — Dubilier
1 Metallised resistance, 5,000 ohms, 1 watt — Dubilier
1 Metallised resistance, 10,000 ohms, 1 watt — Dubilier
1 Metallised resistance, 50,000 ohms, 1 watt — Dubilier
1 Metallised resistance, 500 ohms, 3 watts — Dubilier
5 Valve-holders, 5-pin, under-baseboard type — Eddystone
(Clix, W.B.)
4 Fixed condensers, 4 mfds., 1,500 v, D.C. test — Peak
1 Fixed condenser, 2 mfds., 1,500 v, D.C. test — Peak
1 Fixed condenser, 1 mfd., 500 v, D.C. test — T.C.C. type 65
1 Fixed condenser, 2 mfds., 500 v, D.C. test — T.C.C. type 65
(Dubilier)
1 Speaker cable, 4-way
3 Plugs, 5-pin — Bulgin P.3
2 H.T. Safety sockets — Belling-Lee
1 Venesta ("Plymax" baseboard, 16in. x 8½in. x ¾in.) — Peto-Scott



5 watts power unit for the A.V.C. Monodial.

Screws, wire, flex, sleeving, lamp-holder adaptor, wood, etc.
Valves: 1 UU120/500 (Mazda), or Cossor 420BU, or Marconi U.14, or Osram U.14, or Mullard DW4, or Philips 1561, or Six-Sixty SSW120/500.
1 PP5 400 (Mazda), or Marconi PX25, or Osram PX25.
NOTE.—If a non-energised speaker be used, a 2,500 ohms 60 henry choke will be needed.

ADDITIONAL PARTS REQUIRED FOR CONVERTING AN EXISTING MONODIAL TO INCORPORATE AUTOMATIC VOLUME CONTROL

RECEIVER CHASSIS

1 Valve-holder, 5-pin — Clix chassis-mounting type
3 Fixed condensers, 0.1 mfd., non-inductive — Dubilier type 9200
(T.C.C., Telsen)
1 Fixed condenser, 0.0005 mfd., mica — Dubilier type 620
1 Fixed condenser, 0.01 mfd., mica — Dubilier type 620
(Ferranti, Loewe, T.C.C., Telsen)
1 Fixed condenser, 0.1 mfd. — Dubilier type BB
(Ferranti, Formo, Peak, T.C.C., Telsen)
1 Plug, 5-pin — Bulgin type P3
1 Battery cable, 4-way — Bulgin type BC2
1 Volume control, 250,000 ohms — Claude Lyons type P5-250A
2 Metallised resistances, 250 ohms, 1 watt — Dubilier
1 Metallised resistance, 2,500 ohms, 1 watt — Dubilier
1 Metallised resistance, 4,000 ohms, 2 watts — Dubilier
1 Metallised resistance, 6,000 ohms, 3 watts — Dubilier
1 Metallised resistance, 10,000 ohms, 1 watt — Dubilier
1 Metallised resistance, 50,000 ohms, 1 watt — Dubilier
1 Metallised resistance, 75,000 ohms, 1 watt — Dubilier
2 Metallised resistances, 100,000 ohms, 1 watt — Dubilier
2 Metallised resistances, 1 megohm — Dubilier
(Colvern strip type, Erie, Claude Lyons)
1 Screen, 2¾in. x 2¾in., No. 16 S.W.G. — Peto-Scott
Valves: 1 Marconi or Osram VMS4, 1 Mullard 354V, or 1 Marconi or Osram MHL4.

2.5 WATTS POWER CHASSIS

1 Mains transformer, 4 v at 1 amp. C.T. — Sound Sales
1 Choke, 30 henrys, 400 ohms, 50 mA — Bulgin LF14
1 Valve-holder, 5-pin — Clix chassis-mounting type
2 Electrolytic condensers, 8 mfd. — T.C.C. type 802
NOTE.—If a non-energised speaker be used, a 2,500 ohm 10 watts resistance will be needed.

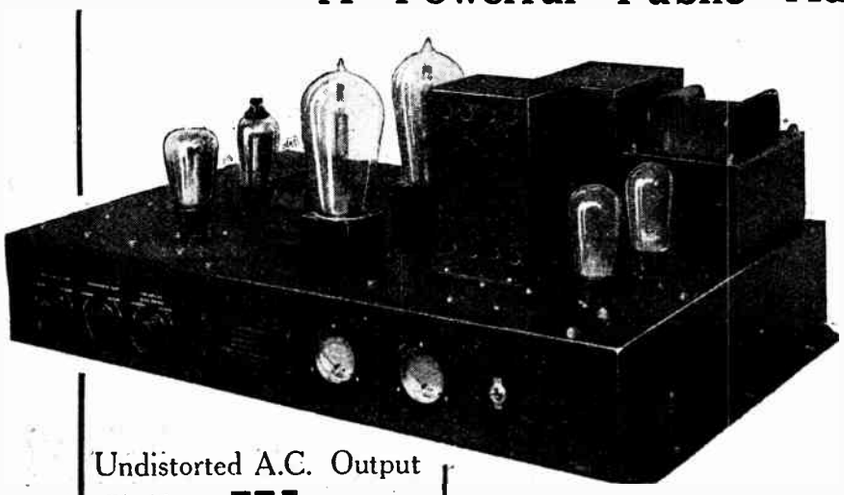
5 WATTS POWER CHASSIS

1 Mains transformer, 4 v at 1 amp. C.T. — Sound Sales
1 Valve-holder, 5-pin — Eddystone type 921
1 Fixed condenser, 4 mfd. (for use in receiver units, see text) — Dubilier type BB
NOTE.—If a non-energised speaker be used, a 2,500 ohm, 60 henry, 60 mA choke will be needed.

BRITISH BSR THROUGHOUT

120 Watt Power Amplifier

A Powerful Public Address All-mains Equipment



Undistorted A.C. Output

24 Watts

Full particulars and prices sent on application.

Designed for quality reproduction this Amplifier is a definite advance on anything hitherto achieved in P.A. sound equipment. Materials and Workmanship are of the highest order and the performance will satisfy the most critical. Every refinement is incorporated and operation is of the simplest character.

Unsurpassed quality of Reproduction

SPECIFICATION

The Circuit comprises two stages of L.F. Amplification and two D.O.60 Power Valves in Pushpull. Two precision Moving Coil Meters in Power Stage. Mercury Rectifiers with Automatic Delay Switching.
Microphone Input Transformers, Mains and Output Transformers are incorporated in the Chassis.
Provision made for plugging in two Microphones and Pick-up with suitable Faders, also Main Volume Control.
Mounted on Crystalline Steel Chassis 26"×17½"×12¾" high. All wiring Sub-Chassis.
Mains 190 250v. 50 cycles.
Can be supplied in Dual Turntable Cabinet with suitable Heavy Duty P.A. M.C. Speakers.

OTHER STANDARD MODELS

11.8, 5.9, 3 and 2 watts undistorted A.C. Output.
The B.S.R. Radio Chassis supplied for coupling to the above.
Finest materials individually assembled and tested.

Special Treatment for Export without extra cost.

B.S.R. Guaranteed Mains Transformers and Chokes are supplied for all requirements. Lists Free.

The B.S.R. AMPLIGRAM is a self-contained Portable All-mains Gramophone Amplifier, with Pick-up and Turntable. See "Wireless World" Test Report in last week's issue.

BIRMINGHAM SOUND REPRODUCERS, LTD., CLAREMONT WORKS, OLD HILL, STAFFS.

'Phone: Cradley Heath 6370.
'Grams: Electronic, Old Hill.

N.B.—U.K. Trunk Calls (up to 6 minutes) refunded on order being placed.

Holdens

HAYNES SERVICED DESIGNS

QUALITY RECEIVER

A.C. Model. 6 Watts output.

Kit of highest grade components of uniform finish, loud speaker and five valves, **£19 19s.**, carr. paid.
Extra for dual loud speakers, 30/-

HAYNES D.C. SUPERHETERODYNE

An easily assembled and hum-free receiver.

Kit with five valves and loud speaker, **£18 18s.**, carr. paid.

HAYNES A.C. SUPERHETERODYNE

2 watts output, with valves and loud speaker, **£18 18s.**
6 watts output with seven valves (diode detection) and loud speaker, **£23.** Extra for dual loud speakers, 30/-
Blue Prints for A.V.C. and other modifications supplied.

HAYNES

FERROCART RECEIVER

A.C. Model. 2 Watts output.

Generous specification for the discriminating constructor.

3 receiving valves and valve rectification, band-pass and H.F. Colvern Ferrocart couplings, cellulosed metal base plate, Rich & Bundy mains transformer and chokes, wire wound resistances. Parts finished in uniform blue-grey—a Haynes innovation. Set serviced.

Kit with 4 valves and loud speaker, **£16 16s.**

HAYNES

FERROCART QUALITY RECEIVER

Alternative version of the Haynes Quality Receiver.

Kit with five valves and loud speaker, **£20 14s.**

Existing sets readily converted. Set of coils, circuit and large blueprint, 50/- post free.

Constructional Booklets free and post free.

Full scale blue prints accompany all Haynes Sets.

Complete Sets and Radiogramophones.

HAYNES RADIO

Complete Chassis at small extra cost.

London Office: (Sales)
57, HATTON GARDEN, E.C.1. *Chancery 8023.*

SAFEGUARDS THE CONSTRUCTOR.

Factory: Enfield 2726.
QUEENSWAY, ENFIELD, MIDDLESEX

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For particulars of Box Number Advertisements and Deposit System see previous issues

RECEIVERS FOR SALE.

PYE K, latest model, 7 weeks old; £7/10.—Frost, Ashford (Middlesex), 372. [1973

QUIESCENT Push-pull Conversion Kit, including 2 Mazda P.E.N. 220A., Bryce specially matched transformers (5 years' guarantee), milliammeter, Lucas potentiometer, Eric resisters, Peak condensers, complete equipment for conversion with wiring diagrams; £3/9; lists and diagrams free.—Woods Radio, Holcombe Brook, near Bury. [1896

BURNDEPT A.C. Mains Seven Chassis, complete, speaker, frame, less valves, £4/5; Burndept 7-valve battery superhet., with frames, excellent lock-up mahogany cabinet, all valves, less batteries, perfect, £4/10.—T. Scott, 108, Tantallon Rd., Glasgow. [2091

CLIMAX Band Pass Three All-electric, 200-240 A.C., in walnut cabinet, with Rola M.C. speaker, list price £16/16, in original carton, unopened; £8/8, c.o.d., carriage paid.

MACNAMARA Golden Voice 3-valve A.C. Set, complete with moving coil loud speaker, in walnut cabinet, list price £15 15, in original packing, unopened; £8, c.o.d., carriage paid; in white cabinet, £7/7.—Kay, 167, City Rd., London, E.C.1. [2089

A.C. Monodial, complete to specification but without cabinet, together with W.B. 6-guinea permanent magnet speaker and Ferranti output transformer; £20; demonstration after 7 p.m.—Hamilton, 9, Overdale Av., Langside, Glasgow. [2083

"W.W." Super Six, professionally constructed, 1932, little used, complete; bargain, 21 guineas.—Box 6290, c/o *The Wireless World*. [2084

COLUMBIA Radiogram, A.C. model 662, cost 28 guineas, only used one month, perfect condition; accept £15.—Box 6284, c/o *The Wireless World*. [2059

GECOPHONE 4v. Portable; £6; in new condition; spare accumulator; seen and heard N.W. London. Box 6278, c/o *The Wireless World*. [2050

MARCONI Straight 8 Receiver, in perfect order, with improved output stage and choke condenser filter, complete with special Marconi A.C. power unit for same; £10.—Below.

W.W. Long Range 2 H.F. Receiver, all A.C. operated, built on large baseboard, complete with new valves; £3/10.—F. W. Smurthwaite, Ltd., Harmony Works, Wallington, Surrey. [2076

CLEARANCE Line in Mains Receivers; stamp brings list.—Woods Radio, Holcombe Brook, Near Bury. [2068

APPLEBY'S, Central London Office, 46, Bloomsbury St., New Oxford St., London, W.C.1. Museum 8195. [1833

WHITELEY A.C. Super Six, Magnavox speakers, list £21, brand new, £8/10; Zenith 8-valve superheterodyne, A.C., £8/10; American Five, A.C., 3 S.G., requires valves, 45/-.—94, Upper Sutton Lane, Heston. [2119

ADVERTISER, having received present of Ultra Tiger Three Valve A.C. Consolette (list 18 guineas) (which unfortunately will not work from the domestic gas supply), will sacrifice at 11 guineas, carriage paid U.K.; in original carton.—Box 6302, c/o *The Wireless World*. [2125

KILO-MAG Four, with moving coil, 130 volts wet H.T. Exide, B.T.H. pick-up; cost £43, perfect condition; particulars and offers.—Reuthe, Crantock, Farnborough, Kent. [2094

1932 6-valve A.C. Chassis, complete valves and speaker, vari-mu Pentode, long and short waves, as new; £6/10. Also

1932 8-valve A.C. Receiver, 4S.G. push-pull output, beautiful walnut consul cabinet, long and short waves; cost £47/10, as new £17/10. After 7.—57, Clarissa St., Haggerston. [2102

RECEIVERS, components, or valves accepted part exchange for 1933 products, liberal allowances.—Write Dept. R., British Radio Exchange Corporation, 26-27, D'Arblay St., London, W.1. [2040

FERRANTI 7-valve Superheterodyne Receiver, 1933 model, new condition, A.C., list 24 guineas, accept 16 guineas; K.B. Pup battery set, complete as new, £3; also 3-valve A.C. short wave receiver, screen grid H.F., screen grid detector, exceptionally efficient, £15.—Gardiner, 45, Conduit St., W.1. Regent 4436. [2043

FOR Sale, new, 1 5-watt test amplifier, with Rich and Bundy transformers and B.V.A. valves; offers.—Aalpha Products, Wellington, Salop. [2045

MONODIAL D.C. Super, exactly to specification, with valves, brand new, cancelled order reason for selling; £16/16, complete.—W. Flower, 623, Lea Bridge Rd., Leyton, Essex. [2047

for "SOUND" EQUIPMENT

- Special P.A. Speakers suitable for all outputs.
- Power Amplifiers suitable for DANCE HALLS, SPORTS MEETINGS, FETES, ETC.
- The most up-to-date apparatus for outdoor or indoor sound reproduction and Radio reception.

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2, Whitworth Street West, Deansgate, Manchester

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Messrs. Spencers (Scotland) Ltd. 119, George Street, Edinburgh

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"THE WIRELESS WORLD" AGAIN LEADS WITH THE FERROCART III A.C. RECEIVER!

YOU, SIR, may require one of these amazingly selective high quality Sets, but may be too busy to build it yourself—similarly, your friend may not be able to construct it himself and will come to you for advice on where he may obtain one fully assembled and tested—

SCOTT SESSIONS

provide such a service, and for

£18-10-0 (or for 1st Deposit of £2-6-3)

supply the FERROCART A.C. III built with first class workmanship, and *including all Valves and Royalty* and S.S. Mains Transformer and Choke.

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Original FIELD REPLACEMENT CHOKE (Specially recommended for FERROCART III described in "*Wireless World*") - - - - - 16/- each.

All "W. W." sets constructed or repaired by our Expert Staff—WRITE US NOW!

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The Autocar EVERY FRIDAY FOURPENCE

ww16.

CHARGERS AND ELIMINATORS.

TANTALUM for A.C. Chargers, H.T. and L.T.—Blackwell's Metallurgical Works, Ltd., Garston, Liverpool. [1934

A.C. or D.C. Chargers for 2 to 200 cells at Low Prices; state requirements; dynamos and rotaries in stock all sizes, Brown's Generometer battery superseders for H.T. for 2v. or 6v. input, 37/6 and 52/6; television and sewing machine universal motors, 25/-; lists.—Electradix Radios, 218, Upper Thames St., E.C.4. [0398

R. A. ARNELL Still Offers Eliminators to Exact Specification, cheap; enquiries invited for any types.—8, Fishponds Rd., S.W.17. [2078

WESTINGHOUSE 2-circuit Rectifier Set, A.C. 100, 200, 250v. D.C., 12 12v., 8 8 amps., new, in crate.—Write Box 6294, c/o *The Wireless World*. [2115

FERRANTI Trickle Chargers, perfect condition, 25/- each.

EKCO No. SF20 H.T. Unit for A.C. Mains, 3 positive tappings, 30/-; also Ekco high power H.T. unit, 100 m.a. output, 3 adjustable taps and power, cost 16 gns., accept £4.

M.L. Anode Converter, 110v. D.C., 400v. D.C., 80 m.a., new condition; £5.

ALL the Above Guaranteed Bargains from F. W. Smurthwaite, Ltd., Harmony Works, Wallington, Surrey. [2077

BROWN and SALTER, Vortexion, Wimbledon, for the finest transformers made regardless of price; all models guaranteed 12 months, tested on full load and 2,000 volts between windings before despatch; all finished in cast aluminium frames or shroudings.

VORTEXION Model Specified for the Modern A.C. Quality Amplifier, 400-0-400, 110 milliamps, 4v. 3a. C.T., 4v. 2a., 4v. 1a. C.T., any input, 50c., insulated terminal type; 24/-.

VORTEXION Model for the Ferrocart III, 350-0-350v. 60 m.a., 4v. 2.5 C.T., 4v. 3.5 C.T., screened primary, open type, 13/6; shrouded, 16/-.

VORTEXION.—W5, 6, or 7 for Westinghouse H.T.5, 6 or 7, with 4v., 1-4a., C.T.; 11/6.

VORTEXION.—W8, 9, or 10 for Westinghouse H.T.8, 9 or 10, with 4v. 1-2a., C.T., 4v. 2-5a., tagged leads, shrouded; 16/6.

VORTEXION.—W11 for Westinghouse H.T.11, with 4v. 1-2, 4v. 1-6a., all C.T., shrouded; 40/-.

VORTEXION.—250-0-250, 60 m.a., 4v. 1-2, 4v. 2-4a., all C.T., open type tagged leads; 11/6.

VORTEXION.—350-0-350, 120 m.a., 4v. 2-5, 4v. 1-5, 4v. 2-4, all C.T., shrouded type tagged leads; 16/6.

VORTEXION.—400-0-400 or 450 or 500-0-500, 120 m.a., open types, 4v. 2-4a., 4v. 2-5a., 4v. 2-5a., all C.T., 19/-; tagged leads.

VORTEXION.—500-0-500, 150 m.a., or 450-0-450, 150 m.a., or 400-0-400, 190 m.a., 4v. 2-5a., 4v. 4a., 4v. 2a., 4v. 2a., 4v. 2a., all centre tipped, any input, 50 C, beautifully shrouded, core size, 2¼×1¼, screened primary and strips, a £5 model, 35/-.

VORTEXION.—30h. 50 m.a. chokes, 5/6; 20h. 120 m.a. 8/6; 15h. 350 m.a., excellent for rough D.C., shrouded, 15/-.

VORTEXION for Helsby Condensers, 750 D.C. working, 6 mfd.; 6/6, list price 21/6

VORTEXION.—Transformers made to your specification.

VORTEXION.—Brown and Salter, 182, The Broadway, Wimbledon. Tel.: Liberty 2814. [2034

N.P. Battery Chargers for A.C. Mains; stamp for trade lists and terms.

N.P. Trade Price Lists and Photographs of Battery Chargers for Stamp; Senior One will do 1 to 12 2-volt cells at once, 75/-; Senior Two, 1 to 36 2-volt cells; also H.T. 120 volts at ½ amp., 105/-; H.P. terms; Westinghouse rectifiers.

N.P. Valve Chargers are Supreme, from 65/- to £27, up to four circuits; lists for stamp.

N.P. Specialise in Battery Chargers of All Sizes for A.C. and D.C. Mains; keen prices.

N.P. Have a Few Soiled Instruments; bargains, trade lists for stamp.—Nash Products, Ltd., Stetchford, Birmingham. [2063

SERADEX Smoothing and Output Chokes, guaranteed one year, fitted heavy clamps.

SERADEX C.A. Choke, 20h., constant up to 100 m.a., carry 120 m.a., 200 ohms, weight nearly 3lb.; 12/6

SERADEX C.B. Choke, as reviewed in *Wireless World*, 8 7/32, 36h., at no D.C., 16h. at 20 m.a., carry 30 m.a., 3/6; type C.B.S., as above, but cased, 3/11.

SERADEX C.C. Choke, 40h., at 50 m.a., 12/6; C.C.P.EN., pentode type, 14/6.

SERADEX C.D. Choke, 30h. at 70 m.a., 12/6; C.D. 10h., carry 200 m.a., 120 ohms, 12/6.

SERADEX C.I. Speaker Field Replacement Choke, 70h., carry 50 m.a., 2,500 ohms, 12/6; as specified for the Ferrocart Three.

SERADEX Special Pentode Choke for Ferrocart Three, 35h., carry 35 m.a., giving ratios 1 to 1, 1.6 to 1, 2.5 to 1; with leads 8/6, with terminals 9/-.

SERADEX Q.P. Choke for Quiescent Push-pull, tapped, giving 1 to 1, 1.6:1, and 2.8:1; 10/-.

SERADEX C.G. Choke, 40h., at 120 m.a., 350 ohms, 17/6; stripped type, 16/6.

SERADEX Transformer for Ferrocart III, screened primary as specified, terminal type 19/6; stripped type, 16/9.

SERADEX Mains Transformer for Modern A.C. Quality Amplifier, primary (screened), 200 to 250 volts 50 cycles, secs. 400-0-400v. 120 m.a., 4v. 2½a., 4v. 1a., 4v. 3a., and special 4v. 3a. winding for H.F. and detector valves if required; terminal type, 32/6; stripped type with leads £1/9/6.

SERADEX Transformer and Choke Lists now Ready.—Trevor Pepper, 48, Wake Green Rd. Birmingham, 13. [2975

MAINS Transformers.—Input, 110v. to 240v., output 300-300, 100 m.a., 4v. 2 amps., C.T., 4v. 4 amps., C.T., guaranteed 12 months; price 17/9.—Excelsior Radio, 9, Carthew Villas, Hammersmith, W.6. [2128

TRICKLE Chargers, ½ amp., with Westinghouse rectifiers, complete, 2-6v., 11/9; trickle chargers, 1¼ amps., ditto, 19/11.

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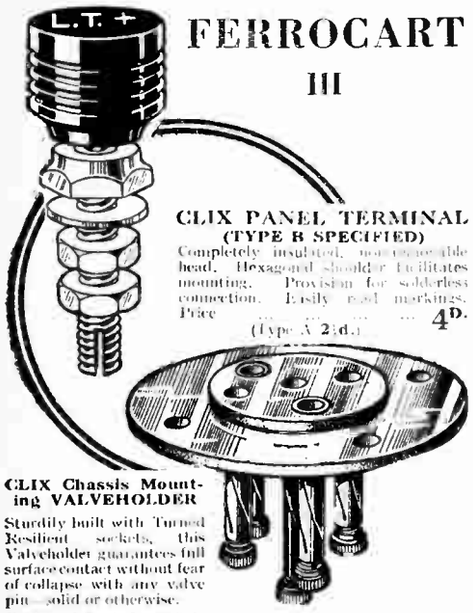

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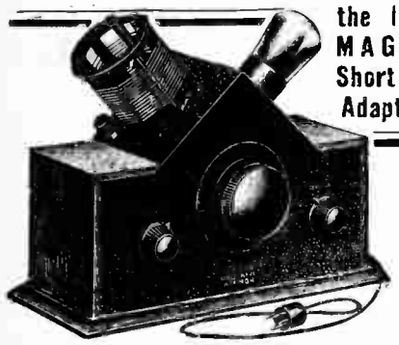

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RYALL'S RADIO, 33, Chancery Lane, London, W.C.2 (nearest Tube, Chancery Lane; bus 67 passes door, or tram to Savoy St.). Holborn 3529. Open Saturday afternoon. Close 7 p.m., Thursdays 1 o'clock, Saturday 6 p.m.

R. [2031

NEWTH'S Offer Brand New Set Manufacturers' Surplus Mains Transformers. Note: These are manufacturers' current lines, guaranteed 12 months, all tapped and screened primaries, L.T. windings, C.T., 500-0-500 at 120 m.a., 22/-; 450-0-450 at 120 m.a., 21/-; 350-0-350 at 150 m.a., 20/-; all above have following L.T. windings, 4v. 2.5a., 4v. 2a., 4v. 5a.; specials to "W.W." specification, Standard 5, 400-0-400 at 120 ma., 4v. 6a., 4v. 3.5a., 4v. 2a., 25/-; "W.W." quality amplifier, 400-0-400 at 120 m.a., 4v. 3a., 4v. 2a., 4v. 1a., 24/-; 350-0-350 at 60 m.a., 4v. 2.5a., 4v. 3a., 12/-; if extra, 4v. 1a., 14/-; 525-0-525 at 80 m.a., 4v. 2.5a., 4v. 4a., 12/-; 250-0-250 at 60 m.a., 4v. 1a., 4v. 1a., 4v. 5a., 12/6; for metal rectifiers, H.T.8, 200 volts, 200 m.a., 4v. 3a., 12/-; another, with 4v. 5a., 14/-; for H.T.9 or "W.W." Baby Super, 240 volts, 200 m.a., 4v. 4a., 16/-.

SMOOTHING Chokes, 20 henry, 30 m.a. (400 ohms), 6/-; 30 henry, 60 m.a. (600 ohms), 7/-; 50 henry, 60 m.a., 8/6 (500 ohms); 20 henry, 120 m.a. (375 ohms), 9/3.

CONDENSERS, G.E.C., 750 test, 1 mfd., 1/1, 2 mfd., 1/9, 4 mfd. 2/6; 1,500 test, 1 mfd., 1/8, 2 mfd., 2/4, 4 mfd., 4/-; multiple blocks, 4+4+2+2+2+2+2+1+1, 11/-; 11 mfd. block, 4+2+2+2+1, 6/9.

AUTOMATIC Changers, Changers (2 only), Garrard, A.C., 100-250, £7 10/-; D.C., 200-240, £8.

GRAMOPHONE Motors and Pickups, combined, Collard, with automatic stop, 100-240, A.C., £3.

VALVES (few only).—U.12, B.U.442, M.P.T.4, 10/- each; variable condensers, 3 gang, J.B., Nugang, fully screened, trimmers, escutcheon plates, etc., 14/-; 2-gang, as above, 10/-.

MOVING Coil Speakers, Rola's (U.S.A.), S type, 7½ cones, 6-10 volts, 110-175 volts (2,000 ohms), 30-130 volts (2,500 ohms), 150-200 volts (4,700 ohms), 200-250 volts (6,500), complete with multi ratio transformers, all 17 each; Senior models, as above, 9½ cones, list 45/6, 23/-; A.C. models, 30/-; P.M., 25/-; dual compensated, any 2 energised, above, 7½ cones, 30/-; Senior models, 45/-; pair Philips P.M. speakers, with audio ratio transformer, list 49/6, 28/-.

ROTARY Converters.—D.C. to A.C., 230, electric dynamic, 1933 (2 only), used demonstration only, complete with silence cabinet and filter, 90 watt model, list £14, at £10; 180 watt model, list £17/5, at £13; cash with order or c.o.d. Newth's, Mayfair Radio, 31, George St., Hanover Sq., London, W.1. Mayfair 5346. [2032

BLBLBLBLBLBLBLBLBLBLBLBLBLBL

WALNUT or BLACK

"R" and "B" Type terminals and terminal mounts now made in Black or Walnut Bakelite

The Terminal Mount is reduced from 8d. to **6d.**

BELLING-LEE
FOR EVERY RADIO CONNECTION
Cambridge Arterial Road, Enfield, Mdx.

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Write for Illustrated Catalogue of
RADIO-GRAMOPHONE CABINETS
of exclusive modern design, made by craftsmen in highly figured Oak, Walnut or Mahogany, post free.
REMARKABLE VALUES.
Cabinets made to order a speciality.
Makers, under licence, of the
HOWE BOX BAFFLE.
Recommended by the B.B.C. Full details on request.

GILBERT
Cabinet Maker - SWINDON
Estimates Free. Est. 1866

CRESSALL RESISTANCES

"Cressall" Asbestos-Wire Woven Resistance Nets for voltage absorbing on D.C. Mains. Receivers. Mica-Wound Resistance Units. Sliding Resistances. Resistance Wires.

Please write for Lists.

CRESSALL MANUFACTURING COMPANY, 31-32, TOWER STREET, BIRMINGHAM.

GRIPSO MIDGET WANDER PLUG
THE PATENT SIDE SPRING STRONGLY GRIPS ANY SIZE BATTERY — 12 TITLES
EACH 1½D
THE GRIPSO COY
28 VICTORIA ST. LONDON, S.W.1.

JUNIT SYNCHRONOUS ELECTRIC CLOCKS

Write for the new Complete Catalogue including models to match Pye, Ultra, etc., radio receivers.
Junit Mfg. Co., Ltd., Junit Works, Steele Rd., Chiswick, London, W.4.

RYALLS RADIO,
33, CHANCERY LANE, LONDON, W.C.2,
accept used radio parts, or sets, in part or full payment for brand new, at list prices. Only good quality components accepted, accumulators and very small items cannot be taken. Goods bought for cash from callers, up to one-third of list price paid, parcels by post by arrangement only.

10,000 GRAMO-MOTORS FROM STOCK
MAKE A GRAMOPHONE OR RADIOGRAM AT BIG CASH DISCOUNT. Order loose kits and assemble them at home. Get for 3d. our new 64-page catalogue with scale drawings and instructions how to make them. We sell motors from 7/6: Pickups, B.2 Volume Horns, Loud Speakers, Radio Kits, Gramophones, Radiograms. Buy your Radio Set through us. 1933 All brands list FREE. Trade supplied. Established 1903.

THE REGENT FITTINGS CO., (W.O.), 120, OLD STREET, LONDON, E.C.1.

Graham Farish says:—

"I created a NEW STANDARD with the

NEW OHMITES,

because of their undoubted efficiency. They filled the urgent needs of the technicians, who were quick to recognise their reliability. Absolutely non-inductive they cannot create hum, built with a big margin of safety they withstand mains 'surge' and heavy electrical stresses, and because of their easy handling are ideal for the experimenter. The fact that they are specified for the FERROCART A.C.3 is a sufficient testimony."

The popular and efficient resistances for all general purposes. All values 50 ohms to 5 megohms. 1/6 each.

For those who prefer interchangeability and convenience in mounting, holders are available, vertical and horizontal, 6d. each.

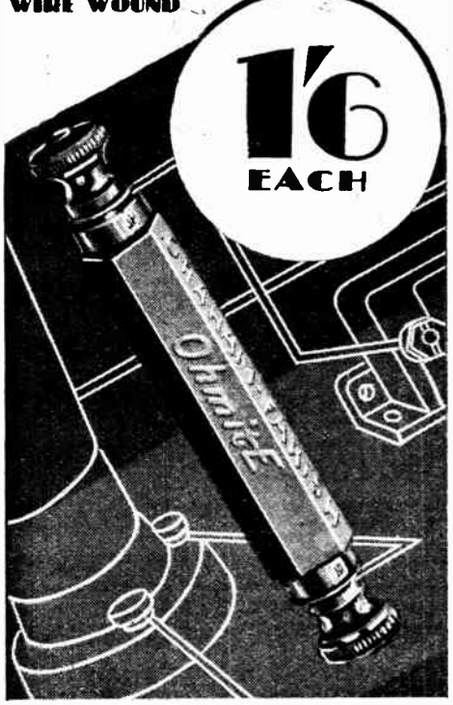
SAFE MAXIMUM CURRENT-CARRYING CAPACITY OF "OHMITES"

100° F. Temperature rise.

Ohms	Milliamps	Ohms	Milliamps
100,000 ..	3.5	10,000 ..	12
80,000 ..	4.24	5,000 ..	20.25
60,000 ..	5	4,000 ..	24
50,000 ..	5.5	3,000 ..	29
40,000 ..	6	2,000 ..	35
30,000 ..	6.75	1,000 ..	40
20,000 ..	8	Other values pro rata.	

HEAVY DUTY TYPE APPROXIMATELY DOUBLE THE ABOVE RATINGS, PRICE, 2/3.

BETTER THAN WIRE WOUND



GRAHAM FARISH, LIMITED,
MASONS HILL, BROMLEY, KENT.
Export Office: 11/12, Fenchurch Street, London, E.C.3.

Components, etc., for Sale.—Contd.

PREMIER SUPPLY STORES Offer the Following Brand New Goods at a Fraction of the Original Price; all goods guaranteed perfect; carriage paid over 5/-, under 5/- postage 6d. extra. (Ireland carriage forward.)

PREMIER Mains Transformers, all guaranteed, terminal connections, input 200-250 volts 40-100 cycles, output 135 volts 80 milliamps., for voltage doubling, 8/6; 4 volts 4 amps. C.T. low tension, 2/- extra; Westinghouse rectifier for above, 180 volts 30 milliamps, 8/6.

PREMIER Mains Transformers, output 250-0-250 volts 60 milliamps., 4v. 1a., 4v. 2a., and 4v. 3-4a. (all C.T.), with screened primary, 15/-.

H.T.8 Transformers, with 4v. 3.5a. L.T. (C.T.), with screened primary, 15/-; with Westinghouse rectifier, 25/-.

H.T.9 Transformers, output 230 volts 200 milliamps, with 4v. 4a. (C.T.), with screened primary, 15/-; with Westinghouse rectifier, 26/-.

H.T.10 Transformer, with 4v. 4a. L.T., 15/-; with rectifier, 27/- (smoothed output 200v. 100 m.a.).

PREMIER Mains Transformers, 12 volts 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps. and 4 volts 2 amps., 8/6; 14 volts 4 amps., 12/6; 4 volts 3 amps., 7/6; 4 volts 5 amps., 8/6; 22 volts 1 amp., 10/-; 6 volts 2 amp., 7/6.

MAINS Transformers, output 350-0-350 volts 90 milliamps, 4 volts 3 amps. (C.T.), 4 volts 2 amps. (C.T.); 12/6.

AMPLION Mains Transformers, input 100-250 volts, output 350-0-350 volts 120 milliamps, 4v. 5a., 4v. 2a., 6v. 1a. (all C.T.); 17/6.

SPECIAL Offer of Mains Transformers, manufacturers' type, any input, output 250-0-250 volts 60 m.a., 4v. 1a. (C.T.), 4v. 3a. (C.T.), 8/6; 180-0-180 volts 40 milliamps., 4v. 1a., 4v. 2a., 4/6; 175 volts 50 m.a., 4v. 4a., 4v. 1a., 5/6; H.T.8, with 4v. 3-4a., 8/6; with rectifier, 18/6.

MULTI Ratio Output Transformers, 15 different ratios, 7/6; Pye chokes, 20 or 32 henries, 4/-.

PREMIER Chokes, 40 m.a. 25 henries, 4/-; 65 m.a. 30 henries, 6/-; 150 m.a. 30 henries, 10/6.

SMOOTHING Chokes for Series Connected Filaments from D.C. Mains, carry 1 amp.; 7/6.

KOLSTER BRANDES 80 milliamp 30 henry Chokes, tapped one-third and two-thirds; 7/6.

AMPLION High Inductance Chokes, resistance 2,500 ohms, 80 henries, 60 m.a.; 5/6.

PREMIER Eliminators, input 200-250 volts 40-100 cycles A.C., incorporating Westinghouse metal rectifiers, output 250 volts 60 milliamps, 80 and 120 volt taps, 42/6; with 4 volts 4 amps. L.T. (C.T.), 7/6 extra.

PREMIER Eliminators, output 150 volts 30 milliamps, 80 and 100 volt taps, with 4 volts 3-4 amps. (C.T.), L.T., 37/6; with trickle charger, 42/6.

PREMIER Eliminators, output 120 volts 20 milliamps, 80 and 100 volt taps, 27/6; with L.T. trickle charger incorporated, 35/-.

D.C. Eliminators, output 120 volts 20 milliamps, 80 and 100 volt taps, 15/-; larger model, output 200 volts 50 milliamps, 80 and 120 volt taps, 25/-.

ACCUMULATOR Chargers, 200-250 volts A.C., all incorporating Westinghouse rectifiers. 2, 4, 6 volt ½ amp., 17/6; 2, 4, 6 volt 1 amp., 22/6; up to 12 volts 1 amp., 27/6; up to 6 volts 2 amps., 35/-; up to 6 volts 3 amps., 47/6; larger outputs to order.

S. G. BROWN Power Units, consisting of tapped mains transformer, Westinghouse rectifier, and T.C.C. electrolytic condenser, output 6 volts 1 amp., for charging and energising; 21/- (listed £3/15).

T.C.C. Condenser Blocks, 250 volts working, 8×2×2×1×1 mfd., 5/6; 375 volts working, 6×4×2×2×2 mfd., 10/-; 250 volts working, 3×2×0.5×0.5 mf., 3/6.

CONDENSER Blocks, 400 volts working, 3 separate 4 mfd. condensers, 3/6; with 2 separate 1 mfd. condensers, 2/- extra.

WESTERN ELECTRIC, 400 volts working, 0.01×0.01 mfd., 1/-; blocks, 4×2×2×2×1×0.09 mfd., 400 volts working, 6/-.

FERRANTI Condenser Blocks, 300 volts working, 4×4×2×2 mfd., all entirely separate; 10/-.

T.C.C. Condensers, 750 volts working, 2 mfd., 4/-; 750 volts working, 4 mfd., 6/-; 400 volts working, 4 mfd., 4/-; 4 mfd. electrolytic condensers, 440 volts working, 3/-; 8 mfd., 3/3.

WESTERN ELECTRIC Condensers, 250 volts working, 1 mfd., 6d.; 2 mfd., 1/-; 400 volts working, 1 mfd., 1/-; 2 mfd., 2/-.

POLAR 3-gang Variable Condenser, tub type, fully screened, split end vanes and disc drive, 0.0005; 12/6.

ORMOND All-brass 2-gang Condensers, semi-shielded, 0.0005, 5/-; Ormond all-brass 0.0005 slow motion condensers with knob and dial, 3/6; Polar 0.0005 and 0.00035 bakelite dielectric condensers, with knob, 1/-.

BRITISH Radiophone 4-gang Condensers, with trimmers, 12/6; fully screened, 16/-.

SPECIAL Offer.—Wire-wound resistances, 4 watts, any value up to 10,000 ohms, 1/-; 8 watts, any value up to 15,000 ohms, 1/6; 15 watts, any value up to 50,000 ohms, 2/6; 25 watts, any value up to 50,000 ohms, 3/6; 50 watts, any value up to 50,000 ohms, 5/-.

WIRE-WOUND Potentiometers, 15,000 ohms, 1/6; Centralab potentiometer volume controls, 50,000 ohms, 2/-; Colverstats Logarithmically wound potentiometers, 6,000 ohms, 1/9.

HEAVY Duty Variable Resistances (slider type), wound on porcelain, 2,000 ohms, ½ amp., 5/-; 500 ohms, 1 amp., 5/-.

B.T.H. R.K. Minor Moving Coil Speaker, 2,500 ohm field, with output transformer, 15/-; A.C. model (200-250 volts), 25/-.

MAGNAVOX D.C.144, 2,500 ohms field, 15/6; ditto, 200-250 volts A.C., 25/6; Rola 2,500 ohms and 6,500 ohms, type F.6, 17/6; Rola P.M.5 permanent magnet, 20/-; F.6 permanent magnet, 31/- (all with output transformers).

AMPLION Moving Coil Speakers, type E.M. 644, dual fields, 2,500 and 5,000 ohms (100 or 200-250 volts), with output transformer, 12/6; ditto, 200-250v. A.C., 22/6.

B.T.H. Electric Gramophone Motors, 100-250v. A.C. and D.C. (listed 6 gns.), our price, complete, 45/-; B.T.H. induction type, A.C. only, 100-250 volts, 30/-, complete; double spring gramophone motors, with 12in. turntable, 15/-, complete.

SPECIAL Offer of Kolster Brandes Electric Gramophone Motors, all complete with turntables, list price £5; No. 1, super A.C., 100-250 volts, induction type, 35/-; No. 2, super universal, 100-250v., A.C. or D.C., £2; No. 3, clockwork motor, electrically wound, £2/5.

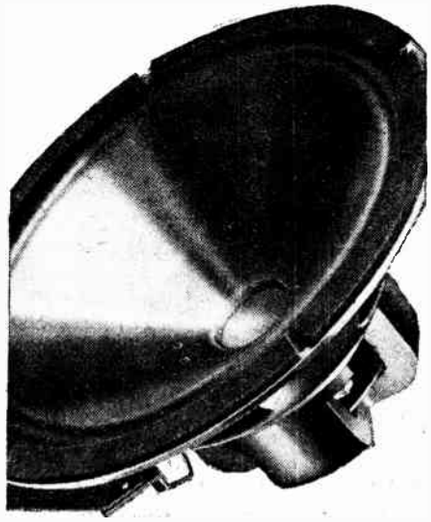
AMPLION Pick-up and Arm, with volume control, 17/6; Amplion permanent magnet speaker, M.C.22, 30/-.

EKCO Microphones, complete with transformer, a really fine job, 18/6; wire-wound Clarostat potentiometer, 50,000 ohms, 2/6.

(This advertisement continued on next page.)

PPM 29

Recognised the world over as the finest speaker in its class.



77/6 INCLUDING UNIVERSAL TRANSFORMER

The sensitivity of the P.P.M. 29 Speaker is greater than ever before attained. Its quality of reproduction and ability to handle tremendous volume are remarkable achievements. It employs an extra large Hyflex diaphragm and a *massive* magnet. Ask your local dealer to demonstrate. When you hear it you will appreciate the extraordinary life-like tonal quality and sensitivity of this Celestion Speaker.

Price including universal transformer - - 77/6

CELESTION

The Very Soul of Music

FOREMOST NAME IN SOUND REPRODUCTION

CELESTION Ltd., London Rd., Kingston-on-Thames

London Showrooms: 106, Victoria St., S.W.1

Handbook of Technical Instruction for Wireless Telegraphists. (Fourth Edition.) By post, 25/9.

H.T.

INVESTMENT OR EXPENSE?

Battery that lasts years

WRITE FOR FREE BOOKLET AND FIGURE OUT WHAT YOU CAN SAVE

"I have been using my Standard Battery 3 years. It is trouble free, always ready and speaks for itself. What more can one require?" (R. H., Stoke-on-Trent.)

Here's another testimonial giving facts beyond dispute. You WILL save money by installing STANDARD H.T. once for all. You WILL get better reception. The STANDARD battery recharges itself when the set is shut down, being a special adaptation of the famous Leclanché principle—and it is PERMANENT because the eventual replacement is merely a matter of changing cartridges (which you do yourself) at 3½d. each. We sell direct in order to Guarantee your satisfaction. Send a postcard for our Free Booklet It shows how to end battery expense and make it a permanent investment. Do it now, before you forget.

Model H.5

126 VOLT STANDARD BATTERY

No. 3 size. 84 cells, 12,500 milliamp capacity

Cash Price **37/8** or delivered on 1st payment of **5/-**

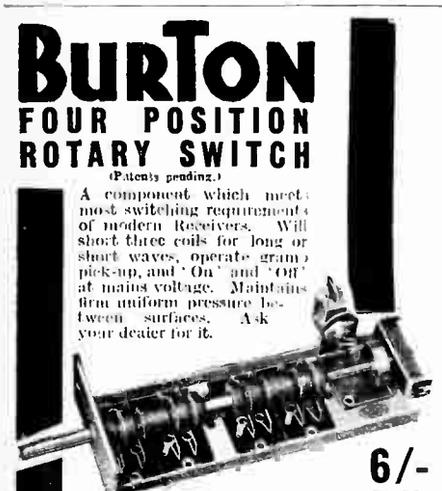
STANDARD BATTERY CO. (Dept. W.W.), 184-188, SHAFTESBURY AVENUE, LONDON, W.C.2.

BURTON

FOUR POSITION ROTARY SWITCH

(Patents pending.)

A component which meets most switching requirements of modern Receivers. Will short three coils for long or short waves, operate gram pick-up, and 'On' and 'Off' at mains voltage. Maintains firm uniform pressure between surfaces. Ask your dealer for it.



6/- EACH

C. F. & H. BURTON

PROGRESS WORKS, WALSALL, ENG.

KINVA RADIO PRODUCTS TRADE MARK

CHOKES

SLAB TYPE, LOW D.C.

0·1 to 0·3H, 3/6; 0·5, 4/6; 1·0, 5/9; 2·0H, 6/9

(Tappings Extra)

HETERODYNE WHISTLE FILTERS

TYPE "B.1," Adjustable Choke Filter, 7/-
TYPE "B," Adjustable, 7/6; "A," 12/-

SCREENED H.F. CHOKES

FAMOUS STANDARD TYPE, 2/9 POST 3d.
'MAJOR' TYPE for 'SUPERS,' 5/6 EXTRA
SHORT WAVE, UNSCREENED, 2/3 ALL ITEMS

List on Request.

POSTLETHWAITE BROS.
KINVER, STOURBRIDGE

Components, etc., for Sale.—Contd.

(This advertisement continued from previous page.)

WESTINGHOUSE Metal Rectifiers, 120 volts at 20 m.a., 6/6; 180 volts at 30 m.a., 8/6; 8 volts at 0.5 amps., 6/6; 250 volts, 60 m.a., 10/-; 6 volts at 1 amp., 9/6; 12 volts, 1 amp., 17/6.

ALL the Following Lines 6d. each, or 5/- per doz. assorted: trimming condensers, shielded S.G. or Pentode leads; Paymet 0.01 condensers; 2ft. lengths of screened wire; 5-pin valve holders; Crabtree sunk 5-amp. switches.

AMPLION Six Receivers, listed £21, complete with valves, 200-250v. A.C., 9 gns.

ALL Orders to 20-22, High St., Clapham, S.W.4 (Macaulay 2188). Closed 1 o'clock Wednesdays. Open till 9 o'clock Saturday. Nearest station, Clapham North Underground. [2122

MODERN RADIO Present the Following Goods, all in first class order and supplied as specified throughout:

SIMPSON Electric Turntable, 27/6; Collard gramophone motor, bronze finish, 100-260 volts A.C., with fully auto stop and turntable, 35/-.

FARRAND Inductor Speaker, green type, 35/-; smoothing chokes, wound on a massive core, 1,500 ohms 30 hen. 30 m.a., 4/6; 750 ohms 30 hen. 20 m.a., 3/6.

T.C.C. Condenser Blocks, 250 volts D.C. working, 2+2+2+1+1, 2/-; 4+4+2+1, 2/3; 2+2+2+2+2+1+1+1+1+1, 3/6.

SMOOTHING Chokes, 800 ohms 60 m.a. 30 hen., by well known maker, 3/6; 700 ohms 40 hen. 30 m.a., 2/6; twin H.F. chokes, high inductance, 1/6.

RESISTANCE Panels, containing 2 T.C.C. 1 mfd. 250 volt A.C. working condensers, 3 Erie resistors, 20,000, 30,000 and 50,000 ohms 1 watt, and 2 Lissen resistances, 250 and 680 ohms, 3/- the lot.

T.C.C. 0.1 mfd. working voltage 250 A.C., 8d.; Erie resistors, 10,000, 20,000, 25,000, 30,000 and 50,000 ohms 1 watt rating, 8d. each.

T.C.C. Type M Condensers, 4d.; type 65, 250 volts D.C. working, 0.5, 8d.; 1 mfd., 1/-; 2 mfd., 1/4.

W.B. Sub Panel 5-pin Valve Holders, 3d.; T.C.C. block Condensers, 250 volts D.C. working, 4+4+2, 2/6.

D.C. Mats, 650 ohms, tapped at 200, 220, 240, contained in a ventilated iron case; 2/-.

ETA American Base Mains Valves, type 624, S.G., 6/-; slightly used valves at 3/- each, to callers only. Ls.5 and 5a, B12, American types 227, 281, 250.

WAVEMASTER 0.0003 and 0.0005 Variable Condensers, metal end plates, dielectric type, 1/9; slow motion types, 2/6.

UTILITY 2-gang Condensers, 0.0005 each, half air spaced type, with external trimmer for front section, including slow motion disc drive with dial light, 10/6.

MITE Slow Motion Drum Dials, with 0.0005 condenser; 2/6.

PHILIPS Mains Transformers, input 230-250, outputs 250-0-250 60 m.a., 4 volts 1 amp., 4 volts 2 amps; 3/-.

T.C.C. Electrolytic Condensers, 440 volts working, aqueous type, 4 mfd., 3/-; 8 mfd., 3/9.

LOEWE Vacuum Grid Leaks, condensers and Resistances, 3d. each 2/- per dozen; 10,000, 15,000, 25,000, 0.0003, 0.005 and 2 meg. grid leaks.

VALVE Holders, rigid type 3d., spring type 6d.; Mullard valves, emission guaranteed, as new, P.M.22A and P.M.12, 11/6 each; P.M.24a, used for testing purposes only, 5/6.

2-VALVE All-Electric Kits, with 3 Ostar-Ganz valves, suitable for A.C. or D.C., 210-240 volts, with plans and components, by first class manufacturers, every one guaranteed; 47/6; the valves alone are worth more.

ROLA K Type D.C. Moving Coil Speakers, 2,500 ohm field, fitted with pentode transformer; 16/-.

SUPER Quality Mains Transformers, 100-240 volts input, outputs 350-0-350 100 m.a., 4 volts 4 amps. C.T., 4 volts 2/3 amps., type No. 2, 350-0-350 60 m.a., 4 volts 4 amps. C.T., 4 volts 2-3 amps. C.T.; 10/6 each.

MODERN RADIO, 25, York Terrace, Clapham, S.W.4 Nearest Tube Station, Clapham North. 'Phone: Macaulay 3409. [2033

SOUTHERN RADIO'S Guaranteed Wireless Bargains.—Mains transformers fully tapped, primary 200-250v. 50 cycles, centre tapped L.T., 250-0-250, 60 m.a., 4 volts 1 amp., 4 volts 3 amps., 10/3, carriage paid; 350-0-350, 60 m.a., 4 volts 2 amps., 4 volts 4 amps., 12/3, carriage paid; 350-0-350, 120 m.a., 4 volts 1 amp., 4 volts 2 amps., 4 volts 4 amps., 16/9, carriage paid; 450-0-450, 120 m.a., 4 volts 2·5 amps., 4 volts 4 amps., 4 volts 2 amps., 18/9, carriage paid; 500-0-500, 120 m.a., 4 volts 5 amps., 20/-, carriage paid.

TRANSFORMERS for Westinghouse Rectifiers, H.T.4, 5, 6, or 7, 12/-, carriage paid; H.T.8 or 9, 13/6, carriage paid.

SMOOTHING Chokes, 40 henries, 40 m.a., 700 ohms, 6/-, carriage paid; 20 henries 60 m.a., 480 ohms, 7/-, carriage paid; 15 henries, 100 m.a., 330 ohms, 8/-, carriage paid; 20 henries, 120 m.a., 270 ohms, 8/6, carriage paid; special transformers and chokes quoted for and delivery given within 3 days from receipt of order; all guaranteed for 12 months, and carriage paid.

PLEASE Note. Our transformers and chokes are of the best British manufacture, and are supplied under unconditional guarantee; we invite our customers to submit any transformer or choke supplied by us to the technical test of any qualified firm.

SELF Manufacturer's New Surplus. Ready Radio Mains 3-valve screen grid battery kits, new, in sealed cartons, 27/6 less valves; with 3 Mullard valves (P.M.12, P.M.2D.X., P.M.2), £2 10/6 (listed £5/7/6); Ready Radio 303 3-valve battery kits, new, in sealed cartons, 21/- less valves; with 3 Mullard valves (P.M.2D.X., P.M.2, P.M.1L.F.), 39/- (listed £3/10); Mullard Radio for Million A.C. 3-valve kits, in sealed cartons, including 3 Mullard valves (P.E.N.4V., 354V., S.4V.), £3/12/6 (listed £5/10/-); 3-valve battery sets, complete with valves, batteries, accumulator, incorporating Columbia speaker, contained in fine domed shaped cabinet, £2 each in original cartons (listed £5/19/6); Radiophone volume controls and switch combined, 50,000 ohms, 3/9 each (listed 10/6); H.M.V. volume controls, 3/- each; dual gang variable condensers, H.M.V., 0.0005, with trimmers and shielded, 6/- each (listed 29/6); screened chokes, H.M.V., 1/- each, 9/- dozen; condensers, 4 mfd., 2/6; 2 mfd., 1/9; 1 mfd., 1/1 each, all 750-volt test; block condensers, 10 mfd. (2+2+2+2+1+1), 1,500-volt test, 6/6 each; all goods guaranteed and carriage paid. Southern Radio, 323, Euston Rd., London, N.W.1 (near Warren St. Tube). 'Phone: Museum 6324. [2087

BANKRUPT Stock of Retailer, Ewell.—Particulars, Soar and Soar (agents to the Official Receiver), Crossways, Cheam. 'Phone: Sutton 1845. [2118

R.I. Q.P.P. Input Transformer, unused, guaranteed; 12/6.—Box 6296, c/o *The Wireless World*. [2123

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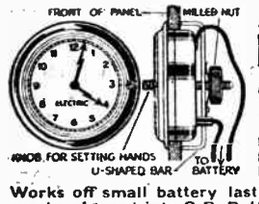

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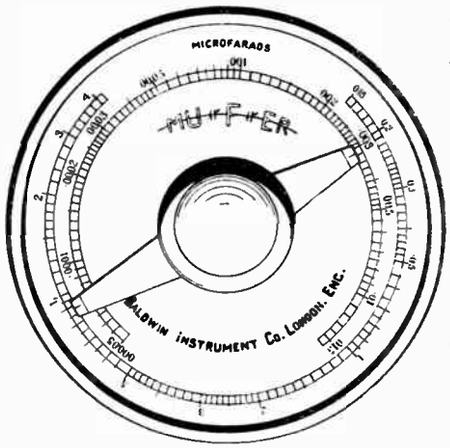

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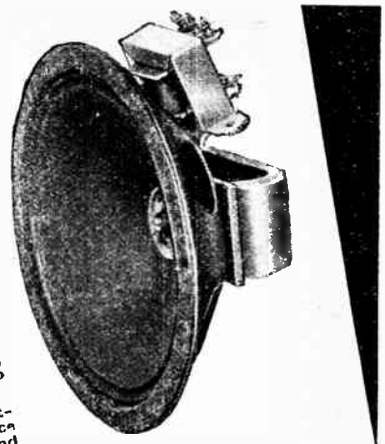

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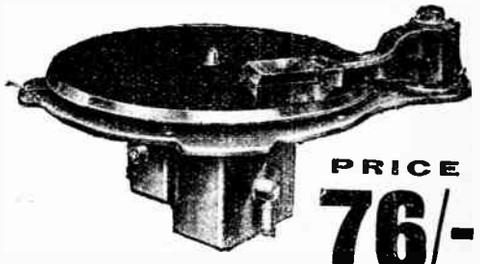

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INDEX TO ADVERTISEMENTS.

	PAGE
Alton Battery Co., Ltd.	Inside back cover
Apollo Gramophone Co., Ltd.	v.
Atwater-Kent (G. A. Brittain, Ltd.)	Inside front cover
Baker's Selhurst Radio	20
Baldwin Inst. Co.	21
Barber & Colman, Ltd.	21
Belling & Lee, Ltd.	16
Birmingham Sound Reproducers, Ltd.	13
Britannia Batteries, Ltd.	22
British Institute of Eng. Technology	20
British Pix Co., Ltd.	v.
British Radio Institution	20
British Radiophone Co., Ltd.	12
British Rola Co., Ltd.	1
British Thomson-Houston Co., Ltd.	2
Bryce, W. Andrew & Co.	8
Bulgin, A. F., & Co., Ltd.	
Burne-Jones & Co., Ltd. (Magnum)	16
Burton, C. F. & H.	18
Celestion, Ltd.	17
Clarke, H., & Co. (M'cr.), Ltd.	7
Cole, E. K., Ltd.	Front Cover
Collaro, Ltd.	21
Columbia Gramophone Co., Ltd.	Back Cover
Colvern, Ltd.	11
Cossor, A. C., Ltd.	
Cressall Manfg. Co.	16
Darwins, Ltd.	22
Dubilier Condenser Co. (1925), Ltd.	3
Eastick, J. J., & Sons	9
Edison Swan Electric Co., Ltd.	7
Electradix Radios	20
Electro Dynamic Construction Co., Ltd.	6
Epoch Radio Manfg. Co., Ltd.	20
Ferranti, Ltd.	2
Formo Co.	4
Gilbert, J. C.	16
Goodmans	21
Graham Farish, Ltd.	17
Gramophone Co., Ltd.	10
Gripso Co.	16
Haynes Radio	13
Heys, Leonard	20
Igranic Electric Co., Ltd.	20
Jackson Bros.	Inside Front Cover
Junit Manfg. Co., Ltd.	16
Kenden Manfg. Co.	6
Lectro Linx, Ltd.	16
Lever, Eric J. (Trix), Ltd.	18
London Radio Supply Co.	9
Longley Radio Manfg. Co.	6
Lyons, Claude, Ltd.	Front Cover
McNeill, F., & Co., Ltd.	6
Oldham & Son, Ltd.	12
Parlma Manfg. Co.	18
Partridge, Wilson & Co.	4
Pepper, Trevor (Seradex)	18
Perseus Manfg. Co.	20
Peto-Scott Co., Ltd.	15
Pifco, Ltd.	4
Postlethwaite Bros.	18
Pitch Manfg. Co., Ltd.	4
Pye Radio, Ltd.	5
Radio Resistor Co.	20
Rodferns Rubber Works, Ltd.	6
Regent Fitting Co.	16
Reproducers & Amplifiers, Ltd.	Front Cover
Riverside Manufacturing Co., Ltd.	20
Relax, Ltd. (M-L Equipment)	3
Ryalls Radio	16
Savage, W. Bryan	19
Scientific Supply Stores (Wireless), Ltd.	20
Scott Sessions & Co.	14
Sifam Electrical Inst. Co.	18
Simpsons Electricals, Ltd.	vi.
Smith, S., & Sons (Motor Accessories), Ltd.	2
Smurthwaite, F. W., & Co.	20
Sonochordie Reproducers, Ltd.	8
Standard Battery Co.	18
Tannoy Products	14
Telsen Electric Co., Ltd.	Front Cover
Tunnadge & Partners, Ltd.	18
V.G. Manufacturing Co., Ltd.	6
West End Electric	8
Westinghouse Brake & Saxby Signal Co., Ltd.	Inside Back Cover

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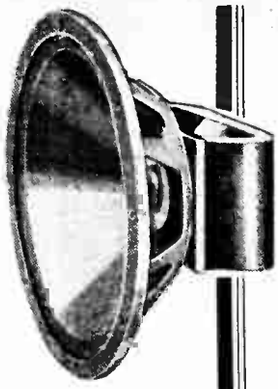

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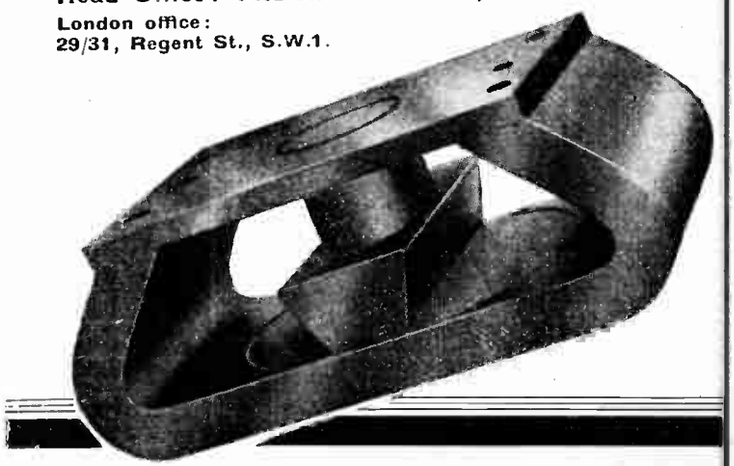

WEDNESDAY
MARCH THE FIFTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Sir Oswald Mosley: "Fascism." Symphony concert from Queen's Hall.
LONDON REGIONAL	"Castle on the Hill," feature programme by C. Denis Freeman. Military Band.
MIDLAND REGIONAL	"Mainly Incidental Music," orchestral concert.
WEST REGIONAL	Orchestral concert from the National Museum of Wales.
SCOTTISH REGIONAL	Gaelic choral concert. "The Clan of Lochlann," a play by B. McArthur.
BELFAST	Orchestral concert from Strammillis.

ABROAD

BRUSSELS (No. 1)	8.45 p.m. Concert from the Conservatoire.
HAMBURG	6.30 p.m. Opera: "Tannhäuser" (Wagner), from the Municipal Theatre, Kiel.
PRAGUE	7.5 p.m. Concert from the Smetana Hall, conducted by Prof. Jirak.
RADIO PARIS	9 p.m. Lamoureux concert from the Salle Gaveau.
REYKJAVIK	10 p.m. Acts 1 and 2 of "La Tosca" (Puccini).
ROME	7.45 p.m. Opera: "Kovantchina"—(Moussorgsky), from the Scala.
STRASBOURG	8 p.m. Orchestral concert, conducted by M. de Villers.
STUTTGART	8 p.m. Delius concert from Frankfurt.

ALGIERS

363.3 metres; 13 kW.—**7.10 p.m.,** Shipping Notes. **7.15,** Weather Forecast and Agricultural Report. **7.20,** Songs from Opera: (a) The Mastersingers (Wagner), (b) Joseph (Mehul), (c) Werther (Massenet), (d) L'Africaine (Meyerbeer), (e) Boris Goudonov (Mussorgsky). **7.55,** News. **8.0,** Time signal. **8.2,** Concert by the Station Orchestra, conducted by Hubert Guillet, and Soloists. In the intervals at **8.30, 9.30,** and **9.55,** News Bulletin. **10.0** (approx.), Close Down.

ATHLONE

413 metres; 60 kW.; and **CORK, 224.4 metres. 1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Popular Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** German Lesson. **8.0,** Military Band Concert, conducted by Colonel Fritz Brase. **9.0,** Contralto Solos by Florence Howley. **9.15,** Pianoforte Recital by Maisie McCullough. **9.35,** Baritone Solos by Sam Joy. **9.45,** Barbara—Play (Jerome K. Jerome), by the Leven Players. **10.15,** Light Music on Gramophone Records. **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **7.0,** Request Gramophone Records. **7.30,** Exchange Quotations and Relay from the Ayuntamiento. **8.0,** Popular Music on Gramophone Records and News. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. **9.5,** Concert by the Station Orchestra: Pasodoble, Faraón (Tabuenca); Selection from El Barquillero (Chapí); Oriental March (Leemans); Gavotte (Dreyer); Procession of the Grail from Parsifal (Wagner); Overture, Semiramis (Rossini). **10.0,** Recitations. **10.15,** Sextet Concert, relayed from the Granja Royal. **11.0** (in an interval), News. **12 Midnight** (approx.), Close Down.

BARI

269.8 metres; 20 kW. **7.0 p.m.,** Agricultural Notes, Tourist Talk and Dopolavoro Notes. **7.20,** Giornale Radio and Weather. **7.30,** Time and Announcements. **7.35,** Concert of Chamber Music. Soloists: Ita Lombardo D'Angelo (Pianoforte), Enza Motti Messina (Soprano), Luigi De Grandi (Tenor) and Nilde Pignatelli (Violin). Overture, Iphigenia in Aulis (Gluck); Pianoforte Solos; Extracts from the Italian Concerto (Bach); Arias (Pasquini): (a) Con tranquille riposo, (b) Aria with Violin Obbligato, Erminia alle rive del Giordano; Violin Solos: (a) Sognando (De Guarnieri), (b) Spanish Dance (Granados-Kreisler); Pianoforte Solos: (a) Moment musical (Schubert), (b) Tambourin (Rameau), (c) Capriccio (Scarlatti); Violin Solo: La bella addormentata (Gasco); Three Soprano Arias from Figaro (Mozart); Third Movement from the Concerto in F (Nardini-Pente); Soprano Aria, Ah perfido! (Beethoven); Pianoforte Solos: (a) Arabesque (Schumann), (b) Seguidilla (Albéniz). In the interval, Talk, **9.30,** Popular Music on Gramophone Records. **9.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW. **3.0 p.m.,** Orchestral Concert: Overture, Le fils du Mandarin (Cui); Lyric Suite (Lindner); Selection from Madame Butterfly (Puccini); Homage March (Grieg). **4.0,** Medical Talk. **5.55,** Time and Programme Announcements. **6.0,** Talk. **6.30,** Recital of Yugoslavian Songs. **6.0,** Popular Music on Gramophone Records. **7.30,** See **Vienna. 9.30** (approx.), News, followed by Light Music from the Ratnicki Dom.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert from **Berlin (Witzleben). 1.45,** Four Boys help each other. A Radio Play for Young People (Peter Matheu). **2.30,** Weather and Exchange. **2.45,** Talk by Dr. Herbert Ulbricht. **3.0,** Review of Educational Books. **3.30,** See **Hamburg. 4.10,** Talk: Modern Systems of Defence—Russia and Italy. **4.30,** Talk: Prospects for those leaving School. **5.0,** Chamber Music: Old Lute Music of the Sixteenth and Seventeenth Centuries. **5.25,** Topical Talk. **5.30,** Wireless Technical Talk. **5.55,** Weather and Announcements. **6.0,** English Lesson. **6.30,** A Poem. **6.35,** Song Recital by Yörgen Bendix: Die beiden Grenadiere (Wagner); Knabe mit dem Wunderhorn (Schumann); Frühlingsnacht (Schumann); Aria from Rigoletto (Verdi); Prologue to I Pagliacci (Leoncavallo). **7.0,** See **Breslau. 8.20,** Talk on Races and Achievement. **9.0,** See **Frankfurt. 9.20,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**6.15 p.m.,** Concert of Light Music from the Café Corso at the Zoo. **7.20,** Topical Talk. **7.40,** Announcements. **7.45,** The Ninth Symphony in D Minor, Op. 125 (Beethoven), relayed from the Philharmonie. The Berlin Philharmonic Orchestra, conducted by Eugen Jochum, with the Bruno Kittel'scher Choir Soloists. **9.0,** Weather, News, and Sports Notes, followed by Dance Music. **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—**7.30 p.m.,** News and Exchange. **7.40,** Tourist Talk. **7.55,** Lottery Results. **8.0,** Agricultural Report. **8.15,** News and Weather Report. **8.30,** Vocal and Orchestral Concert.

BRATISLAVA

279 metres; 14 kW.—**5.0 p.m.,** Hungarian Programme: Talk, Book Review, and Sonata in G Minor for Violin and Pianoforte (Debussy). **6.0** till Close Down. See **Prague. 9.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW. Relayed by **Gleiwitz, 253 metres.**—**12.10 p.m.,** Gramophone Concert. **12.45,** Time, Weather, News, and Exchange. **1.5,** Gramophone Concert (contd.). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.35,** Talk arranged by the Post Office. **3.0,** Talks for Parents. **3.30** (from **Gleiwitz**), Pianoforte Recital of Jazz Music by Georg Richter: The Jazz Master (Mayerl); White Heather (Mayerl); Have you forgotten? (Stessé-Mayerl); The Wedding of the Painted Doll (Brown); Cuban Love Song (Stothart-Hugh-Fields); The Three Musketeers (Riesenfeld-Benatzky). **4.0,** Talk: Experiences of an Actor on Tour. **4.20,** Market Prices, followed by Reading. Johannes von Capistrano in Breslau (Anna Bernard). **4.40,** Concert of Light Music by Emil Gielnick and his Band, with Song Refrains by Ruth Pulss: March-Foxtrot, Heut reiss' ich die Welt zusammen (Strauss-Grün); Waltz, Kikiriki (Touchart-Evans); Three Roses (Nicls); Intermezzo, Alle Hampelmänner tanzen (Lindemann); Song Potpourri, Servus Wien (Dostal). **5.20,** Talk: Smuggling and Smugglers. **5.40,** Concert (contd.): Foxtrot, Lustiges Wien (Jessel-Löhr); Song from Morgen geht's uns gut (Benatzky); Viennese Song, Ich hatt' einst ein süsses Mädel (Schumkalla); Melody from The Flower of Hawaii (Abraham); Russian Fantasia (Grothe-Kirchstein); Mein Glück (Gilbert); Potpourri, Zum Tanz (Kernbach). **6.35,** Weather and Market Prices. **6.40,** Talk: The People and Landscape of Upper Silesia. **7.0,** Upper Silesia—a Radio Cantata (Gerhard Strecke), by the Silesian Philharmonie Orchestra, the Station Choir and Soloists. **8.20,** News. **8.30,** Concert of Old-Time Dances by the Station Orchestra, conducted by Franz Marszalek. **9.30,** Time, Weather, News, Sports Notes, and Programme Announcements. **9.50,** Answers to Correspondents on Legal Questions. **10.0,** Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BRNO

342 metres; 35 kW. **5.25 p.m.,** German Transmission: News, Talk on Gardening and Talk for Workers. **6.0** till Close Down: See **Prague. 9.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW. **12 Noon,** Concert conducted by André Felleman, relayed from the Grand Hotel, Antwerp. **1.0 p.m.** (in the interval), Le Journal Parlé. **5.0,** Concert by the Little Station Orchestra. **6.0,** Talk: Strolls through Belgium—Mons. **6.15,** Symphonic Variations (Franck) on Gramophone Records. **6.30,** Concert by the Station Orchestra, conducted by P. Leemans. Soloist: M. Maricu (Tenor). Overture, The Secret Marriage (Cimarosa); Intermezzo and Aria from The Czar's Bride (Rimsky-Korsakov); Songs: (a) Ständchen (Schubert), (b) Ständchen (R. Strauss), (c) Si mes vers avaient des ailes (Hahn), (d) Chanson de Pierrot (Delmas); Nocturne (Brenta); International Suite (Tchaikovsky). **7.15,** Talk: Party Politics in England and the Scandinavian Countries. **7.30,** Medical Talk. **8.0,** Germinal—Radio Play (Habermont), with Music by the Riga Choir and Soloists. **8.45,** Pitsch Concert, relayed from the Royal Conservatoire. The Chamber Orchestra. Soloists: Mme. Persin-Desfontaines (Organ), Mme. Liebart (Songs), M. Anspach (Tenor), and M. De Groote (Bass). Sinfonia from the Cantata No. 29 (Bach); Duets for Tenor and Bass (Rameau); Organ Solos (Bach). **9.15,** Talk and Readings: Léopold Leveaux. **9.30,** Concert (contd.): Selection from La serva padrona (Pergolesi-Gevaert). **10.0,** Le Journal Parlé. **10.10,** Hot Jazz, with Commentary by André Ache. **10.30,** Light Music on Gramophone Records. **11.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish.—**12 Noon,** Light Music on Gramophone Records. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans. **5.0,** Concert by the Radio Orchestra, conducted by Franz André: Marche des petits soldats de plomb (Pierné); La boîte à joujoux (Debussy); Potpourri of Popular Flemish Songs (Hallebroeck); Russian Potpourri, Dubinushka (Schirman); Suite algérienne (Saint-Saëns); Dances from Nell Gwynn (German). **5.45,** Programme for Children. **6.30,** Gramophone Records: Overture, Semiramis (Rossini); Concerto in A Minor (Schubert-Cassado); Overture, Egmont (Beethoven). **7.15,** Talk on Folklore. **7.20,** Talk on Syndicalism. **7.30,** Theatre Review. **8.0,** Concert by the Radio Orchestra, conducted by Franz André: Turkish March (Mozart); Waltz, Pomona (Waldteufel); Lying in the Hay; Russian Dances (Tchaikovsky); Valse triste (Sibelius); Three Dances (Zimbalist). **8.45,** Talk on Van de Woestijnjana. **9.0,** Concert (contd.): Phaëton (Saint-Saëns); Dances (German); Valse caprice (Saint-Saëns—Ysaye); Flemish Melodies (Brusselmans); The Blue Danube (Joh. Strauss); Selection from Cendrillon (Massenet). **10.0,** Le Journal Parlé. **10.10,** Gramophone Records: Overture, Le Maschere (Mascagni); Harlequin (Popper); Toto déguisé en suisse d'église (de Sévérac); Mimi se déguise en marquise (de Sévérac); Masques (Debussy); Arlequin (Lalo); Minuet No. 1 (Paderevsky); Neptune's March (Ivory); The Gingerbread House (Ivory); Serenade (Schubert); Suite, Mascarade (Lacôme). **11.0** (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—**4.0 p.m.,** Concert by the Station Orchestra: Viennese March (Muller); Waltz, Op. 34 (Chopin); Overture, Rosamund (Schubert); Selection from Faust (Gounod); Selection from La belle Hélène (Offenbach). **5.0,** News and Time Signal. **5.10,** Talk. **5.25,** Concert (contd.): Violin Solo: Reverie (Vieuxtemps); Symphonic Foxtrot, Hallo Romania (Michaelov); Abendlied (Schumann); Italian Serenade (Schibek). **6.0,** Talk: The Historical Development of Romania. **6.40,** Popular Music on Gramophone Records. **7.0,** Violin Recital by M. Bobesco: Sonata in D (Handel); Havanaise (Saint-Saëns); Spanish Dance (Falla). **7.30,** Talk. **7.45,** Song Recital. **8.5,** Whistling Solos. **8.15,** Pianoforte Recital by Elvira Loche: Variations in F Minor (Haydn); Sonata in E, Op. 109 (Beethoven). **8.45,** News. **11.0,** Dance Music from the Grand Hotel Restaurant.

BUDAPEST

550 metres; 18.5 kW.—Also relayed on **840 metres** from **6.25 to 11.0 p.m.**—**3.0 p.m.,** Concert by the Sinti Kurina Cigány Band. **4.0,** Talk: The Hungarian War of Independence. **4.30,** Songs of the Time of the Hungarian War of Independence by the Band of the First Regiment of the Royal Hungarian Infantry, conducted by R. Friesay. **5.50,** Talk: Ludwig Kossuth. **6.30,** Bánk Bán—Opera in Three Acts (Erkel), followed by News and Music by the Imre Magyari Cigány Band from the Hotel Hungaria. **11.0** (approx.), Close Down.

CASSEL.—See **Frankfurt**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.45 a.m. to 1.0 p.m.,** Concert from the Wivex Restaurant. **2.0,** Gramophone Concert of Popular Music. **2.30,** Concert by the Radio Orchestra, conducted by Emil Reesen: Overture, Der Waffenschmied (Lortzing); Selection from Romeo and Juliet (Gounod); Two Pieces for Strings from Acuarelas Valencianas (Chavarri): (a) Cancion, (b) Danza; Waltz, España (Waldteufel); Allegro and Tarantella from the Gipsy Suite (E. German); Bulgarian March from The Chocolate Soldier (O. Straus); Selection from Monsieur Beaucaire (Messager); Intermezzo from Tiefland (d'Albert); Air de ballet and Fête bohème from Scènes pittoresques (Massenet); Dance from Wayland the Smith (Fini Henriques); March from the Music to Sigurd Jorsalfar (Grieg). In the interval at **3.15,** Talk for Women. **4.40,** Exchange and Market Prices. **4.50,** Talk: Björnson and Drachmann. **5.20,** French Lesson. **5.50,** Weather Report. **6.0,** News and Report of the Danish Radio Club. **6.15,** Time Signal. **6.30,** Agricultural Talk. **7.0,** Town Hall Chimes. **7.2,** Talk and Recital of Songs. **7.50,** Four Movements from the Divertissement in E Flat for Violin, Viola, and 'Cello (Mozart). **8.15,** Talk: Questions of the Day. **8.45,** Recital of Danish Songs (Niels Glade) by Per Knudsen. **9.0,** News Bulletin. **9.15,** Concert of Popular Danish Music, by the Radio Orchestra, conducted by Emil Reesen: Overture, Elfea (Kuhlau); Ballet Music from Elverhöj (Kuhlau); Overture, Et Eventyr i Rosenborg Have (Weyse); Fantasia, Drömmebilleder (Lumbye); Overture, Youth and Madness (Dupuy); Tarantella from Napoli (Paulli). **10.0,** Dance Music from the Scala Salen. **11.0** (in an interval), Town Hall Chimes. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**12 Noon,** Light Music on Gramophone Records. **12.30 p.m.,** News Bulletin. **12.45,** Concert of Opera and Operetta Music. **6.0 to 7.0 p.m.,** Programme in English by the I.B.C., C. Danvers Walker, R. Chene and B. McNabb announcing. **6.0 p.m.,** Orchestral Concert for Portsmouth and Southsea Listeners. Overture, Tancredi (Rossini); Prelude to Carmen (Bizet); Two Dances from the Nell Gwynn Suite (German): (a) Country Dance, (b) Merry-makers' Dance; Overture, Alessandro Stradella (Flotow); Ballet Music from Sylvia

SUN. MON. & TUES. PROGRAMMES

(Delibes). **6.30**, Concert for Isle of Wight Listeners. The Capricious Musical Box (Fresco); Songs: (a) My Song (Brown), (b) Lolita; Violin Solos: (a) La Chasse (Cartier), (b) Die Biene (Schubert); Love in Cloverland (Peter); Songs: (a) Song of Love, (b) Home (van Steeden); Waltz. Acclamations (Waldteufel). **7.0**, Local News and Popular Music on Gramophone Records. **7.30**, Radio Gazette. **8.0**, The Listeners' Half Hour and News Bulletin. **8.30**, Variety Concert. **9.0**, Cabaret Programme relayed from **Le Tréport**. **10.0** till Close Down. Programme in English by the I.B.C. **10.0**, Variety Music: Cheerful Little Earful; Every day away from you; Fire in my Heart; Hurt; Just Two Hearts and a Waltz Refrain; You call it madness; Lonely Troubadour; You're the one I care for; My Mystery Girl; You're lucky to me; My Marguerita; Moonlight-Saving time; Thoughts of you; The Wedding of the Birds; Tie a little String around your Finger; When it's Sunset on the Nile. **11.0**, Welsh Music; Welsh Medley (arr. Somers).; Songs: (a) Y Bugail, (b) Allelnia; Chorus: March of the Men of Harlech; Songs: (a) Y Gwew ar y fedwen, (b) My little Welsh Home, Britelodia (Humphries). **11.30**, Trios: Evensong (Easthope Martin); Friend o' mine (Sanderson); Salut d'amour (Elgar); Love's Old Sweet Song (Molloy); Angel's Serenade; Cavatina (Raff); Ave Maria; Pearl of mine. **12 Midnight**, Songs: Wishing and waiting for love; Just plain Folk (Gilbert); Am I blue? (Akst); The Heart of the Sunset (Nicholls); Sleep, Baby, Sleep (Tucker); I'll never ask for more (Ahlert); Take your to-morrow (Razof); Hello, Sunshine (Murray). **12.30 a.m. (Thursday)**, Concertina Solos: Lopeziana (Alter); Irish Medley (arr. Dale); Marilyn (Alter); Scottish Reels (arr. Dale); Hornpipe Medley (arr. Dale); Bonnie lass o' bon accord (Skinner); Orange and Blue (arr. Dale); The Road to the Isles. **1.0**, American Songs: Can't we talk it over? Hallelujah, I'm a Bum; Dinah; I don't work for a living; Fortunes galore; Minnie the Moocher; The Railroad Boomer; Rhapsody in Love. **1.30**, Concert of Light Music: Pianoforte Solo: Selection from The Big Pond (Fain); Songs: (a) Absent-minded (Summers), (b) Memories of you (Blake); Pianoforte Solo: One Night alone with you (Jeffreys); Songs: (a) Girl of a Million Dreams (Gay), (b) The Kid Next Door (Leslie), (c) My kind of love (Alter); Pianoforte Solo: The Squirrel Dance (Elliott Smith). **2.0**, Dance Music: Looking on the Bright Side; Marta; Please don't mention it; Shadows on the Window; Just hummin' along; What makes you so adorable; The King was in the Counting House; Don't tell a Soul; Hummin' to myself; We will always be Sweethearts; Night shall be filled with Music; What would you do; Moonlight on the River; How are you? Song of the Harp. **2.57**, I.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin**

FRANKFURT

259.3 metres; 17 kW.; and **CASSEL, 245.9 metres**; and **TRIER, 259.3 metres.**—**6.15**, Time, Programme Announcements, Weather, and Exchange. **6.30 to 8.0, See Stuttgart.** Zinkenist Schabbardt—Scenes from Swabia's Historic Past (Carl Anton Feuerbächer), with Music of the Period. **8.0**, Delius Concert by the Station Orchestra, conducted by Hans Rosband; Two Scenes from Fennimore und Gerda; Two Scenes from A Village Romeo and Juliet. **9.0**, Talk: The Great Silence and the People on the Frontier. **9.20**, Time, News, Weather, and Sports Notes. **9.45**, Brahms Recital on Two Pianofortes by Hans Rosband and Erich Itor Kahn; Variations on a Theme by Haydn, Op. 56b; Sonata in F Minor, Op. 34. **11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **372 metres**; 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres**; and **Kiel, 232.2 metres.**—**3.30 p.m.** (from **Kiel**), Wind Instrument Concert, conducted by L. Hacker: March, King Albert (Philipp); Overture, 1813 (Weber); Waltz, Estndiantina (Waldteufel); Selection from Faust (Gounod); March, Deutschlands Waffenehre (Blankenburg); Intermezzo, Rose mousse (Bosc); Fanfare Marches for Heralds' Trumpets: (a) Kreutzritterfanfare (Henrion), (b) Hie guet Brandenburg allewege (Henrion); Potpourri, Mit Feuer und Schwert (Fetras). **4.30** (from **Kiel**), Talk: The Months of the Year in Folk Customs and Superstitions. **4.55**, De Düwel int Volkslewen—Radio Sequence (Westerich and Quistorf), by the Station Choir and Soloists. **5.25**, Concert by the Hermann Erdlen Chamber Orchestra; Sonata from Musikalische Frühlingsfrüchte (Becker); Concerto for Violin and Strings (Teleman). **5.50**, Market Prices. **6.0**, Discussion between Two Unemployed Men. **6.25**, Weather. **6.30** (from **Kiel**). Tannhäuser—Opera in Three Acts (Wagner), relayed from the Municipal Theatre; Introductory Talk by Dr. Bernhard Engelke. In the intervals, Announcements. **10.20**, Ice Report. **10.25**, Time, Weather, Announcements, Sports Notes, and Police Report. **10.35**, Concert, relayed from the Reichshof Hotel.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW., and **DANZIG, 453.2 metres.**—**12.5 p.m.**, Gramophone Concert of Light Music. In the interval at **12.20 p.m.**, News. **1.30**, Programme arranged by the Post Office, with Gramophone Records. **2.0**, Exchange and Market Prices. **2.20**, Practical Hints for the Housewife. **2.30**, Programme of Songs and Recitations for Children by Children. **3.5**, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Ballet Music from Hamlet (Thomas); Suite from Lakmé (Delibes); Ballet Music from La Gioconda (Ponchielli); Ballet Music from Faust (Gounod). **4.45**, Talk for Parents. **5.15**, Market Prices. **5.20**, Ice Report. **5.30**, Talk: The German Populations outside Germany. **6.0**, Bridge Lesson. **6.25**, Weather Forecast. **6.30**, Hans Sachs—A Radio Sequence on the German Mastersinger and Poet (Dr. Carl Hagemann). **7.30**, Part Relay of the Master Bakers' Festival Concert from the Stadthalle, Königsberg. The Master Bakers' Male Voice Choir, directed by Konrad Opitz. Schau ich in eure Augen (Carl Weidt); Folk Song of the Sixteenth Century, Siegfeld wohl einem Rosenstock (Neumann); Folk Song of 1824, Da drunten im Tale (arr. Reinhold März); Holla, gut G'sell (Joh. Schein, arr. Kretzschmar); Sixteenth Century Folk Song, Der Umtrank (N. Rost, arr. Fried. Hegar); Im Herbst da muss man Trinken (Marschner). **7.55**, News Bulletin. **8.0**, Concert by the Königsberg Opera House Orchestra, conducted by Karl Hrubetz: Sport Marsch (Karl Hrubetz); Overture, Der Generalkonsul (Heinrich Reinhardt); Waltz, from the Operetta Warum geht's denn jetzt? (Eysler); Potpourri, Eine Sängerfahrt nach Wien (Bert Silving); Waltz from Frauenherz (Jos. Strauss and Reiterer); Selection from Die geschiedene Frau (Fall); Overture, Venus auf Erden (Lincke); Song, Das Herz ist nur ein Uhrwerk (Ziehrer); Quick Polka, D' Helenenthaler (Komzak); Song from Frühlingsstürme (Weinberger); March, Knabenhort (Rudolf Raimann). In an interval at **9.0 p.m.**, Weather, News and Sports Notes. **10.0**, Dance Music from **Berlin (Witzleben)**. **11.0** (approx.), Close Down.

HILVERSUM

Announced **HUIZEN, 296.1 metres**; 20 kW. (7 kW. up to **4.40 p.m.**). Programme of the Christian Radio Society (N.C.R.V.). **10.40 a.m.**, Organ Recital. **11.40**, Police Announcements. **11.55**, Quintet Concert: Fantasia on Nearer my God to Thee (Ruh); Choral (P. E. Bach); Harre meine Seele (arr. Ruh); Neerlands Zangboek: Gramophone Records: Potpourri of Marches (Roland); Suite orientale (Popy); Helvetia (Leopold). **1.10 p.m.**, Light Music on Gramophone Records. **1.55**, Quintet Concert (contd.): Potpourri, Dividenden (Morena); Pluie d'or (Waldteufel); Potpourri, From A to Z (Geiger); Radetzky March (Strauss). **2.40**, Concert by a Children's Choir with Gramophone Records. **3.40**, Variety Music on Gramophone Records. **4.10**, Interval. **4.40**, Programme for Children. **5.40**, Stories for Frisian Children. **6.10**, Advanced English Lesson. **6.40**, Talk. **7.10**, Police Announcements. **7.25**, Religious Information. **7.40**, Organ Recital by M. K. v. Verren. **8.10**, Talk. **8.30**, Organ Recital (contd.). **9.0**, News. **9.10**, Variety Music on Gramophone Records. **11.10** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres**; 8.5 kW. **11.40 a.m.** till Close Down. Programme of the Workers' Radio Society (V.A.R.A.). **11.40**, Concert by De Notenkrakers, conducted by D. Wins. **1.40 p.m.**, Programme for Women. **2.40**, Programme for Children. **5.10**, Organ Recital by Johan Jong: Potpourri, Aus Mozarts Reich (Urbach); Selection from Les Saltimbanques (Ganne); Mitternachtsglocken (Heuberger); Selection from A Waltz Dream (O. Strauss); Komm ins kleine Pavillon (Léhar). **5.55**, Hebrew Programme, Talk and Songs. **6.40**, Concert by the V.A.R.A. Orchestra, conducted by H. de Groot; Soloists: Mm. Jan and Jo van Helden (Violin and Viola): Nachtmusik, Op. 5 (Brand); Sonatina for Two Violins (Honegger); Sommer auf dem Lande (Honegger); Concerto for two Violins and Orchestra, Op. 49 (Holst). **7.25**, S.O.S. Announcements. **7.30**, Variety Music on Gramophone Records. **7.40**, Programme in Commemoration of Karl Marx; The V.A.R.A. Orchestra, conducted by Hugo de Groot: Overture, Prometheus (Beethoven); Organ Solos by Johan Jong; Recitations; Organ Solos by Johan Jong; Recitations; Organ Solos by Johan Jong; Karl Marx—Radio Play (Johannsen); Trauer Symphonie (Haydn). **10.10**, Announcements and News. **10.25**, Talk. **10.30**, Popular Music on Gramophone Records. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.15 p.m.**, Announcements and Gramophone Records. **6.30 to 9.20, See Warsaw. 9.20**, Dance Music on Gramophone Records. **9.40, See Warsaw. 10.0**, Answers to Correspondents in French.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres, 40 kW., and **HELSINKI, 368.1 metres.**—**6.45 p.m.**, Concert by the Radio Orchestra. **7.45**, News in Finnish. **8.0**, News in Swedish.

LANGENBERG

473 metres; 60 kW.—**12 Noon**, Concert, conducted by Eysoldt: March, In Treue fest (Teike); Waltz, Deutsche Lieder (Weinberger); Overture, Il Seraglio (Mozart); Friedmann-Bach Suite (Leuschner); Fantasia on Brahms Music (Morena); Minuet (Moszkovsky); Schlümmerliedchen (Lüling); Rococo Dance and Romantic Dance (Derksen); German Dances (Schubert). In the interval at **1.0 p.m.**, News. **1.30**, Sponsored Programme with Gramophone Records. **2.30**, Exchange and Time Signal. **2.50**, Programme for Children. **3.20**, Talk: The Animal World—The Sleep of Animals. **3.40**, Talk: A Trip down the Dambe. **4.0, See Munich. 5.20**, Talk on Handicraft in West Germany—The History of the Development of Skilled Trades. **5.45**, Weather, Time, Exchange, and Sports Notes. **6.0**, Talk: Cultural Films and the Public. **6.20**, Talk: Health before Everything—How to organise the School Children's Day. **6.35**, Review of Books. **6.55**, First General News. **7.0**, Concert, conducted by Wolf: Overture, Hunyady Laszlo (Erkel); Suite (Holberg); Ein Opernabend (Mannfred). **7.25**, Programme by the Station Choir and Orchestra, conducted by Zimmermann. Soloist: Kläre Hansen (Soprano): Morgengesang—Cantata for Four-Part Male Choir, Three-Part Women Choir, and Soprano (Hildebrand); Morgenhymnus for Mixed Choir and Orchestra (Hugo Wolf). **7.45**, Concert (contd.): Waltz from The Little Dutch Girl (Kálmán); Perpetuum mobile (Strauss). **8.0**, The Discovery of the Blue Grotto—Romantic Play (Georg Goldschlag). **9.5**, News and Sports Notes. **9.45**, Serenade from **Stuttgart**. **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres, 120 kW.; and **DRESDEN, 319 metres.**—**11.5 a.m.**, Orchestral Concert, followed by Exchange Quotations. **1.0**, Talk for the Unemployed. **1.30**, Unfamiliar Authors of Central Germany—a Literary Sequence. **2.10**, Talk: The German Post Office. **2.35**, Economic Notes. **3.0**, A Radio Play for Children (J. Bruno Dittrich). **4.0** (approx.), Concert by a Girls' Choir; Wacht auf! (Wachsmann); Folk Song, Wir sind jung; Folk Song, Wohlauf in Gottes schöne Welt; Folk Song, Auf der Lüneburger Heide; Folk Song, In schönsten Wiesengrunde; Es steht ein Lind in jenem Tal (arr. Jöde); Canon, Ha, ha, ha (Cherubini); Ringelreih (Frey); Canon, Ca-ff-fe-e (Hering); Wenn alle Brünnlein fliessen (arr. Jöde); Regen, Regen (Stephani); O wie wohl ist mirs an Abend; Guten Abend, gut' Nacht (Brahms); Folk Song, Ade zur guten Nacht. **4.30**, Economic Notes. **4.50**, Weather and Time. **5.10**, Book Review. **5.35**, Italian Lesson. **5.50**, Talk: The Thousandth Anniversary of the Wars in Hungary in 933. **6.30**, Concert by the Dresden Philharmonic Orchestra, conducted by E. Gottlieb-Hellmesberger; Soloist: Gerhart Schilling (Pianoforte): Eine kleine Nachtmusik; Pianoforte Concerto in G Minor, Op. 50 (Dussek); Fantasia in F Minor (Schubert-Mottl); Spring Overture (Goetz); Bilder aus Osten, Op. 66 (Schumann); Spring Song, Op. 16 (Sibelius); Gesang und Reigen des Geister, Op. 47 (Busoni). **9.5**, News. **9.15** (approx.), Acts Two and Three of Tannhäuser—Opera (Wagner) on Gramophone Records.

LINZ.—See **Vienna.**

LJUBLJANA

574.7 metres; 25 kW.—**5.0 to 5.30 p.m.**, Programme in English by the I.B.C. Concert of Light Music: On the Mall; Honest, really, truly; Duet: When it's Moonlight in Killarney; Poschalei; Thunder and Blazes; Three Little Times; Duet: I travel the Road; Czardas. **5.30**, Light Music on Gramophone Records. **6.0**, Russian Lesson. **6.30**, Literary Programme. **7.0, See Vienna. 9.0**, Time, News, and Light Music on Gramophone Records.

LWOW

381 metres; 16 kW.—**6.30 p.m.**, See **Warsaw. 9.15**, Dance Music, from the Bristol Palais de Danse. **9.40**, Talk on Esperanto. **9.55**, See **Warsaw. 10.30** (approx.), Close Down.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—**10.30 p.m.**, Popular Concert. **10.45**, Radio Chronicle. **11.0**, Popular Concert (contd.). **11.35**, Talk. **11.40**, Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—**7.0 p.m.**, Chimes, Exchange Quotations, Literary Talk and Request Gramophone Records. **7.30**, Agricultural Talk, followed by Request Gramophone Records (contd.). **8.25**, News Bulletin and Political Review. **8.30 to 9.30**, Interval. **9.30**, Chimes, Time Signal and Political Review. **9.45** (approx.), Confessions before the Microphone by M. Sanchez de Palacios with Lopeto Prada, Enrique Chicote and Carlos Arniches, followed by Song Recital by Paquita Alcarez and an Illustrated talk on Polish Music. **11.45**, News Bulletin. **12 Midnight**, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**5.25 p.m.**, Viola Recital by Stepán Schleichkorn: Sonata in G (Hammer); Pavane (Ravel); Album Leaf (Busoni); Sarabande and Allegretto (Corelli); Gavotte (Mehul); Two Andantes (Handel); Romance (Bossi); Melody (Dudziarz). **6.0** till Close Down, See **Prague. 9.15** (approx.), Close Down.

MOSCOW

TRADES UNION; 1,304 metres; 100 kW.—**4.30 p.m.**, Carmen—Opera in Four Acts (Bizet). **8.0**, Talk in English: Two Divorces.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres**; and **Nürnberg, 239 metres.**—**6.5 p.m.**, Talk: Max Reger and his Art. **6.30**, Military Band Concert. **7.30**, Talk: The Film Style of Various Nations. **7.50**, Gallische Hörner—A Radio Play (Count Clairon d'Haussonville and Ludwig von Wohl). **9.0**, Variety Music on Gramophone Records. **9.20**, Time, Weather, News, and Sports Notes. **9.45**, See **Stuttgart. 11.0** (approx), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredriksstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres**; and **Rjukan, 447.1 metres.**—**4.30 p.m.**, Light Music on Gramophone Records. **5.0**, French Lesson. **5.30**, Programme for Girls. **6.0**, Announcements, Weather and News. **6.30**, Educational Talk: The Discoveries at Ur. **7.0**, Time Signal. **7.1**, Concert by the Station Orchestra, conducted by Hugo Kramm: Overture, The Barber of Seville (Rossini); Selection from Il Trovatore (Verdi); Air from Mephistopheles (Boito); Selection from Tosca (Puccini). **8.0**, M. Finn Halvorsen reads from his own Works. **8.30**, Agricultural Report, Weather, and News. **9.0**, Topical Talk. **9.15**, Song Recital by M. Herberth. **9.45**, Dance Music on Gramophone Records. **11.0** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—**7.0 p.m.**, Dopolavoro Notes, Tourist Talk, Agricultural Notes and Giornale Radio. **7.20**, Popular Music on Gramophone Records. In an interval at **7.30**, Time and Announcements. **7.45**, Variety Concert. Soloists: Carducci (Tenor) and Kirner Wigley (Soprano). A Night on the Bare Mountain (Mussorgsky); Tenor Solos: (a) La gondola nera (Rotoli), (b) Aria from Louisa Miller (Verdi); Adagio (Tchaikovsky); Soprano Solos: Tre giorni son che Nina (Pergolesi), (b) Ninna nanna (Ferrucci-Pergolesi); Two Tenor Solos from Resurrection (Alfano); Danse macabre (Saint-Saëns); Soprano Solos: (a) Du bist die Ruh' (Schubert), (b) Marinetta (Dalcroze); Selection from The Italian Girl in Algiers (Rossini). **9.0**, Songs. **9.55**, News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45**, Le Journal Parlé. **8.20**, Weather Report. **7.30**, Programme for Children. **8.5**, News Bulletin. **8.15**, Concert by the Symphony Orchestra, conducted by Edouard Flament; Soloists, M. Marchesini ('Cello) and M. Cantrelle (Violin): Selection from Der Orloff (Granichstaedten); Berceuse sur l'eau (Bournonville); Syncopation (Kreisler); 'Cello Solo, Sur le lac (Godard); Violin Solos: (a) Salut d'amour (Elgar), (b) Minuet from Le Bourgeóis Gentilhomme (Lully); Dance (Ganne).

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Gramophone Concert of Light Music. **8.0,** Tourist Talk. **8.15,** Interval. **8.30,** Sponsored Concert. **9.10,** Recital of Love Songs of the Time of Louis XIII, by Louis Vanuois and Licette Limozin: Que servent tes conseils Amour? il faut partir (Boesset); Mes belles amourettes, brunette; Ma bergère est tendre et fidèle (Lashert); Amaryllis (Louis XIII); Dansez devant ces beaux yeux (Tessier); Brunez, la musettes (Tessier); Philis, vous avez tant d'appas (Boesset); Divine Amaryllis (Boesset); Beaux yeux, les doux vainqueurs (Guédron); Hé, pourquoi n'oserais-je dire (Guédron). **10.10,** Dance Music by the Lido Orchestra.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW. **6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Gramophone Records: Symphonic Poem, Til Eulenspiegel (R. Strauss). **8.0,** Press Review and Weather. **12 Noon,** Talk: The Schools and Morality. **12.15 p.m.,** Concert by the Radio Paris Orchestra: Minuet from the Quintet No. 11 (Boccherini); Ballet Music from Armide (Gluck). **12.30,** Organ Recital relayed from the Gaumont Palace: Overture, Alessandro Stradella (Flotow); Danse macabre (Saint-Saëns); Song (Clutsam); One Hour with you (Whiting). **1.0,** Exchange, News and Weather. **1.5,** Orchestral Concert (contd.). Une Fête à Bruges (Blémant); Le Carnaval d'Athènes (Bourgault Ducoudray) Cortège burlesque (Chabrier); Valse romantique (Debussy); L'entrée des fetards (Février); Au Champagne (Gillet); Le bal du ménétrier (Roparts); Dances (Brahms). **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. Market Prices, Weather, Agricultural Report and Exchange. **6.40,** German Lesson. **7.0,** Medical Talk. **7.20,** Offenbach Music: Selection from Une Nuit blanche and Les Bavards. **7.45,** Commercial Prices and News. **8.0,** Literary Talk: Pierre Louys. **8.30,** News and Weather. **8.40,** Fashion Reviews. **8.45,** Gramophone Records of Variety Music. **9.0,** Concert by the Lamoureux Society, conducted by Charles Munsch, relayed from the Salle Gaveau. Soloist: Lotte Lehmann (Contralto): Concerto grosso in A Minor (Handel); Symphony in D (Mozart); Aria from Fidelio (Beethoven); Two Arias from Tannhäuser (Wagner); Prelude and Death of Isolde from Tristan und Isolde (Wagner). In the interval at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.—9.0 p.m.,** Work-a-day Thoughts. **9.5,** Business News. **9.15,** Programme to be announced. **9.30,** Weather Report. **9.32,** Market Reports. **9.45,** Blue Ridge Buddies. **9.57,** David Lawrence Dispatch. **10.0,** KDKA Orchestra. **10.15,** Programme to be announced. **10.30,** The Singing Lady. **10.45,** Little Orphan Annie, from **New York. 11.0,** Booth Tarkington's Maude and Cousin Bill, from **New York. 11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.27,** Strange Facts. **11.29,** Temperature Report. **11.30,** KDKA Orchestra. **11.45,** To-day's News, by Lowell Thomas, from **New York. 12.0 Midnight,** Amos 'n' Andy, from **New York. 12.15 a.m. (Thursday),** Programme to be announced. **12.30 to 3.15, New York** Relay. **12.30,** Five Star Theatre—Dramatisation of Short Stories. **1.0,** Eno Crime Club. **1.30,** Time Signal and Harriett Lee and her Leaders. **1.45,** The Country Doctor. **2.0,** Adventures of Sherlock Holmes. **2.30,** Woodbury Programme with Morton Downey and Donald Novis. **3.0,** D. W. Griffith's Hollywood. **3.15,** Around the Cracker Barrel. **3.30,** Bridge School of the Air, by E. Hall Downes, and Around the Cracker Barrel. **3.45,** Bradley Kincaid. **4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.15,** Press Last Minute News Flashes. **4.20,** Smith Ballew and his Orchestra. **4.58,** KDKA Artist Bulletin. **5.0,** College Inn Orchestra, from **New York. 5.30,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.,** Symphony Concert by the Station Orchestra conducted by Miloslav Kabelac. **4.0,** Talk: The Tatia Mountains. **4.10,** A Marionette Play (Sojka) with Music by Isa Krejci. **5.5,** Agricultural Report. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission: Talk: Eugenics and Schools and Report for Workers. **6.0,** Chimes. **6.1,** News. **6.10,** Newly-released Gramophone Records. **6.55,** Talk on the following Transmission. **7.5,** Concert by the Czech Philharmonic Orchestra conducted by Karel Jirak, relayed from the Smetana Hall. Soloist: Karel Hoffmann (Violin). Overture, Iphigenia in Aulis (Gluck); Symphony for Violin and Orchestra (Karel); Symphonic Poem, Venice (Kalik); Symphony No. 7 in A Op. 92 (Beethoven). In the intervals, Talk, and at **8.0:** Time Signal. **9.0,** Time Signal. **9.1,** News. **9.15** (approx), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS; 403 metres; 25 kW.; LAUSANNE, 680 metres; and **GENEVA, 760 metres.—6.0 p.m.** (from **Lausanne**), Weather Forecast, News Bulletin, and Announcements. **6.30** (from **Lausanne**), Talk on the Liquor Trade. **7.0** (from **Lausanne**), Chamber Music. **8.0,** (from **Lausanne**), Cabaret Programme. **9.0,** News and Weather. **9.10** (from **Geneva**), Talk: The Work of the League of Nations. **9.30** (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW. **8.30 p.m.,** Weather Report. **8.40,** Musical Programme and Announcements. **9.0,** Chimes. **9.2,** News Bulletin. **9.30,** Reading. **10.0,** Acts I and II of Tosca (Opera (Puccini).

RIGA

525 metres; 15 kW.—**5.30 p.m.,** Silva—Operetta in Three Acts (Kálmán), relayed from the National Opera House. In the intervals, News. **8.0,** Weather. **8.2,** Dance Music. **10.0** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres,** and **2RO, 25.4 to 89 metres. 6.45 a.m.,** Gymnastics. **7.30,** Giornale Radio and Announcements. **11.30,** Weather and Light Music on Gramophone Records. **12 Noon,** Time and Announcements. **12.2 to 1.15 p.m.,** Orchestral Concert: Barcellonita (d'Anzi); Bianca luna (Nissim); Intermezzo (Annat Alvez); Song (Whiting); Selection from Gipsy Love (Lehár); Melody (Connie); Carnival (Amandola); Spanish Song (Valdes); A Mediterranean Cruise (Jallowiez); Vanna (Clare); Madrileña (Tagliaferri). In the interval at **12.30,** Giornale Radio and Exchange. **3.45,** Children's Radio Review. **4.10,** Announcements. **4.15,** Exchange and Giornale Radio. **4.30 to 5.15,** Song Recital by Dora Domar, Anna Maria Landisa (Soprano) and Lorenzo Ferri (Baritone). Three Spanish Songs: (a) Trigueñita (Brito), (b) Karabali (Ernesto Lecuona), (c) La perla del Cariba (Rodrigo Prats); Three Songs for Baritone: (a) L'assiolo canta (Santoliquido), (b) Oblio (Sgambati), (c) Ballata (Mascagni); Soprano Solos: (a) Donne vaghe (Paisiello), (b) Aria from Lucia di Lammermoor (Donizetti), (c) Bravoura Variations (Proch). **6.0 (Naples),** Shipping and Sports Notes. **6.10,** Agricultural and Dopolavoro Notes. **6.20,** Giornale Radio. **7.0,** Time, Announcements and Light Music on Gramophone Records. **7.15,** Medical Talk. **7.30,** Sports Notes and Tourist Report. **7.45,** Kovantchina—Opera in Three Acts (Moussorgsky), relayed from the Scala. In the intervals, Talk and News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.—7.30 to 12.15 p.m. (Thursday), New York** Relay. **7.30,** Westminster Choir. **8.0,** Two Seats in the Balcony. **12 Midnight,** Mischa Weisbord (Violin). **12.15 a.m.,** Stock Report. **12.30 to 2.0, New York** Relay. **12.30,** Soloist Programme. **12.45,** The Goldbergs. **1.0,** Royal Vagabonds, with Ken Murray. **1.30,** The Shadow (Mystery Drama). **2.0,** Utica Club Programme. **2.15,** Three Shades of Blue—Male Trio. **2.30,** Supper Club Orchestra. **3.0,** Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 80 kW.; **BASLE, 244.1 metres;** and **BERNE, 245.9 metres.—11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather Forecast and News Bulletin. **11.40** (from **Berne**), Ballet Music from Faust—Opera (Gounod), on Gramophone Records. **11.55** (from **Berne**), Extracts from Faust, Werther, Le Roi de Lahore, Le Cloches de Corneville, and Le Roi d'Ys on Gramophone Records. **12.20 p.m.** (from **Berne**), Bolero (Ravel), on Gramophone Records. **12.35 to 12.45,** Weather and Exchange. **2.30** (from **Basle**), Chamber Music and Descriptive Pieces on Gramophone Records. **3.30** (from **Basle**), Programme for Children **4.0** (from **Basle**), Folk Songs and Children's Songs, on Gramophone Records. **4.30 to 4.35,** Weather Report. **5.30** (from **Zürich**), Educational Questions. **6.0,** Time Signal, Weather Forecast, and Market Prices. **6.15** (from **Zürich**), English Lesson. **6.45** (from **Zürich**), Programme by School Children: (a) School Life—Song Cycle, with Commentary (Gottfried Angerer), (b) Doktor Schlimenfingert Play for Children (Traugott Vogel). **8.30,** Weather and News. **8.40,** Concert by the Radio Orchestra, conducted by Hermann Hofmann. **9.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. **Relayed by Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.—4.5 p.m.,** Songs to the Lute, by Erik Böllerstedt **4.30,** Talk on Hygiene. **4.45,** Popular Music on Gramophone Records. **5.45,** Talk. **6.30** (from **Göteborg**), Talk on Manchuria. **7.0,** Romanza and Allegro alla Zingara, from the Violin Concerto No. 2 in D Minor (Wieniawski), by Nora Duesberg-Baranowski. **7.15,** The White-headed Boy—Comedy (Lennox Robinson). **9.0,** Dance Music. **10.0** (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.,** Opera Music on Gramophone Records: Selection from (a) The Prophet (Meyerbeer), (b) Lakmé (Delibes), (c) Cavalleria rusticana (Mascagni); Gavotte and Duet from Manon (Massenet); Pourquoi me reveiller? from Werther (Massenet); Arias (Puccini) from (a) La Bohème, (b) Madame Butterfly; Aria from Louise (Charpentier); Arias from (a) La Juive (Halévy), (b) Werther (Massenet); Serenade from I Pagliacci (Leoncavallo); Aria from Thais (Massenet); Song of the Flea from The Damnation of Faust (Berlioz); Overture, Mirella (Gounod); Duet from Le roi d'Ys (Lalo); Selection from La Bohème (Puccini). **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Gramophone Concert: A Midsummer Night's Dream (Mendelssohn); First Peer Gynt Suite (Grieg); Spanish Rhapsody (Ravel); Bacchanale from Samson and Delilah (Saint-Saëns). **2.0 to 4.45,** Interval. **4.45,** Talk in French: The Electric Kitchen. **5.0,** Jazz Music conducted by M. Roskam. **6.0,** Trio Concert, relayed from **Lille (265.4 metres). 7.0,** Legal Talk in French. **7.15,** Popular Music on Gramophone Records. **7.30,** News. **7.45,** Lottery Results. **8.0,** Orchestral Concert, conducted by M. de Villers. **10.0,** Orchestral Concert, relayed from the Café Moll in Mulhouse: Overture, Tutti in Maschera (Pedrotti); Waltz, La Gitana (Buenbossi); Suite Pastorale (Scassola); Introduction and Tarantella for Pianoforte and Violin (Sarasate); Selection from Manon (Massenet); Polonaise No. 2 (Liszt). **11.0,** Concert relayed from **Radio Coloniale, Paris (25.63 metres).** Soloists: Cunque and Curan ('Cellos). Overture, Manfred (Schumann); Sonata for Two 'Cellos and Orchestra (Handel) Dances from La vida breve (Falla); Cinq Sandades de Brazil (Milhaud). **12 Midnight** (approx.). Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.—12.30 p.m.,** Concert from **Langenberg. 1.0 to 1.15,** Musical Programme arranged by the Post Office. **1.15 to 1.30** (from **Mannheim**), Musical Programme arranged by the Post Office. **3.0** (from **Mannheim**), Programme for Children. **4.0,** Concert from **Munich. 4.50,** Hugo Herrmann Song Recital by Gertrud Hepp (Mezzo-Soprano), the Composer at the Pianoforte: Der Schlüssel Davids; Emmanuel; Geburt des Königs; Als leis das Morgenrot; Sterne meiner Morgenfrühe; Vor meinem Haus kömmt ein Frühlingsgarten; Der Abend sinkt; Nun wird es Nacht; Wenn ich in Nächten wandre; Lalulelia, du mein kleiner Sohn. **5.15,** Time, Weather, and Agricultural Report. **5.25,** Talk by Käte Stocks. **5.50,** Talk: Ancient Ruins in the Amazon Forests. **6.15,** Time and News. **6.30** (from **Mannheim**), Mandoline Concert: Die kleinen Soldaten (Marks); Fantasia, Aennchen von Tharau (Fries); Overture, San Giusto (Bitelli); Unter der Dorflinde (arr. Ritter); Adlerflug-Marsch (Blankenburg-Walter). **7.0,** Schahardt, the Bugler—Radio Play (Carl Fenerbücher), with Music by Willy Kipp. **8.0 to 9.20,** See **Frankfurt. 9.20,** Time, News, Weather, and Programme Announcements. **9.45,** Serenade by the Stuttgart Philharmonic Dance Band, conducted by Harry Risch. **11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—**6.0 p.m.,** News Bulletin. **6.15,** Sound Film Music. **6.30,** Popular Orchestral Music. **6.50,** Instrumental Music: Cavatina (Raff); Minuet (Mozart). In an interval, Talk. **7.15,** Racing Results, Market Prices and News. **7.25,** Local News Bulletin. **7.30,** Airs from Opera: (a) Sappho (Massenet), (b) Le Roi de Lahore (Massenet), (c) Rigoletto (Verdi). **7.45,** Light Orchestral Music. **8.0,** Operetta Music: Selection from (a) La fille de Madame Angot (Lecocq), (b) Les Saltimbanques (Ganne), (c) Le Comte Obligado (Moretti). **8.15,** Music by an Argentine Orchestra. **8.30,** Symphony Music: Ballet Music from Platée (Rameau); Sarabande (Ferroud); Selection from Maritana (Wallace). **8.45,** Opera Music: Airs from (a) Boris Godunov (Mussorgsky), (b) The Bartered Bride (Smetana), (c) The Twilight of the Gods (Wagner). **9.0,** Concert of Light Music by the Palladienne and the Vieille Chanson Musical Societies, conducted by M. Cantenys. In the interval, Viennese Music. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco: Prelude to the Third Act of Louise (Charpentier)—Two Airs from Les Noces de Jeannette (Massé); Selection from Les Millions d'Arlequin (Drigo); Chez le tailleur (Bach and Laverne); The Sleeping Beauty (Dicker). **11.0,** Violin Solos: Wiegenlied (Schubert); Schön Rosmarin (Kreisler); Melody (Lauger); Larghetto (Handel). **11.15,** Popular Melodies. **11.30 to 12 Midnight,** Programme in English by the I.B.C., H. K. Hitchcock announcing. **11.30,** I.B.C. Half-Hour: Hungarian Rhapsody (Liszt); Medley of British Songs; Harry Lauder Lancers; Selection from Faust (Gounod); Waltz, The Blue Danube (Joh. Strauss); The Battle of Waterloo. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Thursday),** Accordion Music. **12.15,** Military Music. **12.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**4.0 to 6.0 p.m.,** See **Turin. 6.0,** Light Music on Gramophone Records. **6.20 to 6.35,** See **Turin. 6.35,** Light Music from the Café Dante. **7.0** (approx.), till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.—4.0 to 5.0 p.m.,** Song Recital. **5.35,** Giornale Radio; Agricultural and Dopolavoro Notes. **6.0,** Gramophone Records of Light Music. **6.20,** Giornale Radio. **6.30,** Time; Announcements and Gramophone Records (contd.). **7.0,** Giornale Radio and Weather. **7.15,** Medical Talk. **7.30,** A Comedy in Three Acts. **9.0,** Gramophone Concert of Italian Music: The Dream from William Ratcliff (Mascagni); Aria from Turandot (Puccini); Aira from Lucia di Lammermoor (Donizetti); Aria O Divine Aida from Aida (Verdi); Aria from André Chénier (Giordano); La campanella (Paganini); Cielo e mar from La Gioconda (Ponchielli); Aria, Un furtiva lagrima, from L'Elisir d'amore (Donizetti); On with the Motley, from I Pagliacci (Leoncavallo); Aria from Norma (Bellini); Overture, The Barber of Seville (Rossini). **10.0,** Giornale Radio. **10.5,** Dance Music from the Rajola, Florence. **10.30** (approx.), Close Down.

VATICAN CITY

19.84 metres (Morning), and **50.26 metres** (Evening); 10 kW.—**10.0 to 10.15 a.m.,** Religious Information in Spanish. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.—6.0 p.m.,** Talk: Catherine II. **6.25,** Time, Weather, and Programme Announcements. **6.35,** Part Relay of the Brahms Concert by the Vienna Singakademie and Symphony Orchestra, from the Musikvereinssaal; Conductor, Leopold Reichwein; Soloist, Vasa Prihoda (Violin): Schicksalslied; Violin Concerto in D, Op. 77. **7.40,** Rudolf Hans Bartsch reads from his own Works. **8.10,** Gold Diggers—Radio Play in Two Acts (Hedwig Rossi). **9.10,** Announcements in connection with the Austrian Musical Festival. **9.20,** News, Weather, and Announcements. **9.35,** Dance Music by the Heinz Branca Band, relayed from the Café Palmhof; Soloist, Walter Branca (Songs).

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Bugle Call from St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Light Music on Gramophone Records. **12.20 p.m.,** Weather Forecast. **12.25 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.30,** Boy Scouts' Report. **2.35,** Programme for Children. **3.0,** Variety Music on Gramophone Records. **3.20,** Educational Talk. **3.40,** Talk in Ukrainian. **4.0,** Talk for Music Teachers. **4.15,** Announcements. **4.20,** E. Morini (Violin) and A. Rubinstein (Pianoforte). Gramophone Concert. **4.40,** Talk on Economics. **4.55,** Programme Announcements. **5.0,** Literary Talk. **5.20,** Current Events. **5.25,** Light Music. **6.0,** Miscellaneous Items. **6.20,** Agricultural Correspondence. **6.30,** Book Review. **6.45,** Radio Journal. **7.0,** Concert by a Mandoline Orchestra, conducted by S. Snieckovski. March (Snieckovski); Blumengeflüster (Blon); Berceuse (Järnefelt); Dance (Blon); Love Serenade (Sulima); Japanese Dance (Yoshitomo); Minuet (Boccherini); In a Chinese Temple Garden (Ketelbey); Air from Polenblut (Nedbal); Gnomenparade (Blon); Mazurka (Namyslovski). **8.0,** Sports Notes. **8.5,** Radio Journal. **8.10,** Pianoforte Recital by Alfred Hoehn. **9.0,** Topical Talk. **9.15,** Dance Music. **9.40,** Talk. **9.55,** Weather Forecast for Aviation, and Police Notes. **10.0,** Dance Music.

ZURICH.—See **Schweizerischer Landessender.**

THURSDAY

MARCH THE SIXTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Mr. Harcourt Williams: "Macbeth from the Producer's Point of View," "L'Ami Fritz," an Alsatian Idyll, adapted by A. MacLean from Erckmann-Chatrian.
LONDON REGIONAL	Recital of Victorian Ballads. A Scottish concert.
MIDLAND REGIONAL	Chamber music.
NORTH REGIONAL	Choral concert from the Shire Hall, Gloucester.
WEST REGIONAL	Hallé concert from the Free Trade Hall, Manchester.
SCOTTISH REGIONAL	"Fairy Bread," a musical feature programme. "An Echo of Former Days," song recital.
BELFAST	Scottish concert.
	Vaudeville programme.

ABROAD

BARI	7.25 p.m. Military Band concert.
COPENHAGEN	7 p.m. Concert, conducted by Prof. N. Malko, from the State Broadcasting Building.
HUIZEN	7.40 p.m. The Utrecht Municipal Orchestra.
PRAGUE	7.40 p.m. Beethoven violin sonatas, played by Stanislav Novak and Karel Solc.
ROME	7.45 p.m. Brahms symphony concert.
STUTTGART	7.35 p.m. Opera: "The Czarina's Slippers" (Tchaikovsky), from the National Theatre, Mannheim.
TOULOUSE	8.45 p.m. Extract from "The Barber of Seville" (Rossini).
TURIN, MILAN, and TRIESTE	7.30 p.m. Opera: "Simon Boccanegra" (Verdi), from the Scala, Milan.

ALGIERS

363.3 metres; 13 kW.—**7.10 p.m.,** Shipping Notes. **7.15,** Agricultural Notes and Weather Forecast. **7.20,** Talk: Curiosities and Recreations. **7.35,** 'Cello Solos: (a) Allegro appassionata (Saint-Saëns), (b) Legend (Coppola). **7.55,** News. **8.0,** Time Signal. **8.2,** Legal Talk. **8.15,** Une fenêtre ouverte—Comedy in One Act (Fayard). **8.30** (in an interval), News. **9.0,** Chamber Music: Concert Piece for 'Cello and Pianoforte (J. de la Presle); Trio (Arensky). In the intervals at **9.30 and 9.55,** News. **10.0,** Concert of Oriental Music. **11.0** (approx.), Close Down.

ATHLONE

413 metres; 60 kW.; and **CORK, 224.4 metres.**—**1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.10,** Dublin Cattle Market Report. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** French Lesson. **7.45,** Literary and Dramatic Talk. **8.0,** The Station Orchestra. **8.30,** Baritone Solos by A. J. O'Farrell. **8.40,** Traditional Music by John Devlin (Flute). **8.50,** Contralto Solos by Doris Hill. **9.0,** The Station Orchestra. **9.20,** Baritone Solos by A. J. O'Farrell. **9.30,** Traditional Fiddle Music by T. J. Small. **9.45,** The Station Orchestra. **10.0,** Light Music on Gramophone Records. **10.30,** Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO-BARCELONA; Call EAJ1; 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations and Talk on Hygiene, followed by an Educational Talk in Catalan. **8.0,** Light Music on Gramophone Records, and News. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. **9.5,** An Opera relayed from the Gran Teatro del Liceo. **11.0** (in an interval), News.

BARI

269.8 metres; 20 kW.—**7.0 a.m.,** Agricultural Notes, Tourist Talk, and Dopolavoro Notes. **7.20,** Time and Announcements. **7.25,** Military Band Concert, conducted by Salvatore Rubino: Overture, The Force of Destiny (Verdi); Selection from La Wally (Catalini); Scene abruzzesi (De Nardis); Prelude, Dance and Finale from Act III of La Gioconda (Ponchielli); Passacaglia in C Minor (Bach); March on Motives from La straniera (Bellini). In the interval, Talk. **9.30,** Popular Music on Gramophone Records. **9.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—**4.0 p.m.,** Talk. **5.25,** Time and Programme Announcements. **5.30,** Dialogue in French. **6.0,** Popular Music on Gramophone Records. **6.30,** Song Recital: Aria from Die toten Augen (d'Albert); Bolero (Dessauer); Japan (Milojevic); Melody (Krstic); Ständchen (R. Strauss); Aria from Figaro (Mozart); Waltz from Faust (Gounod). **7.0,** Programme relayed from **Ljubljana (574.7 metres).** **9.0,** News, followed by Cigány Music, from the Potrosacka Zadruga Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** See **Berlin (Witzleben).** **2.0,** Musical Programme for Children. **2.30,** Weather and Exchange. **2.45,** Reading: Geschichten vom lieben Gott (Rilke). **3.0,** Talk for Women: The Berlin Exhibition. **3.30,** Concert from **Berlin (Witzleben).** **4.10,** Talk on Philosophy. **4.30,** Recital of Eastern Folk Music. **5.0,** Talk: The Fate of Germans in Russia. **5.30,** Talk on the Evolution of March Music, with Illustrations. **5.55,** Weather and Announcements. **6.0,** German Lesson for Germans. **6.30,** A Poem. **6.35,** Agricultural Talk. **7.0,** Concert of Light Music from the Roof Garden of the Café Berlin. **7.35,** See **Langenberg.** **9.0,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Dance Music from **Berlin (Witzleben).** **11.0** (approx.), Close Down.

BERLIN

WITZLEBEN; 419.5 metres; 1.5 kW.—**1.0 p.m.,** Gramophone Concert. The Berlin Philharmonic Orchestra, conducted by Leo Blech. Overture, The Secret Marriage (Cimarosa); Adolf Busch (Violin): (a) Suite in A (Vivaldi), (b) Siciliano (Geminiani); Vera Schwarz (Soprano); Two Arias from Idomeneo (Mozart); Artur Schnabel (Pianoforte); Für Elise (Beethoven); Simon Goldberg (Violin); Sicilienne (Paradis); Richard Tauber (Tenor): (a) Im Herbst (Franz), (b) Ueber Nacht (Wolf); Lotte Lehmann (Soprano): (a) Die Mainacht (Brahms), (b) Vergebliches Ständchen (Brahms). The Berlin Philharmonic Orchestra, conducted by Erich Kleiber: (a) Allegretto scherzando, from the Eighth Symphony (Beethoven), (b) German Dance No. 12 (Beethoven). **1.55,** Exchange and Market Prices. **2.20,** Reminiscences of an African Explorer. **2.35,** Song Recital by Elly Thomas (Soprano); Two Songs (Schumann): (a) Du bist wie eine Blume, (b) Frühlingsnacht, Ueber Nacht (Hugo Wolf); In meiner Heimat (Eugen Hildach); Weisst du's noch (Schmalstich). **2.50,** Pianoforte Recital by Sofie Selzmann: Variations on Weinen, Klagen (Bach-Liszt); Variations and Aria with Variations from the Suite in D Minor (Händel). **3.15,** Talk: Artist helps Artist. **3.30,** Concert by the Berlin Wireless Orchestra, conducted by Bruno Seidler-Winkler: Overture, Ruy Blas (Mendelssohn); Romantic Suite (F. E. Koch). **4.5,** Programme by the Berlin Wireless Chorus, conducted by Maximilian Albrecht. **4.30,** Talk by Wilhelm Schäfer. **4.50,** Talk for Young People. **5.10,** 'Cello Sonata in G Minor (Rachmaninov). **5.45,** Talk on Pomerania. **5.55,** The Witzleben Station informs its Listeners . . . **6.0,** Topical Talk. **6.15,** Talk: The Youth of Yesterday and the Youth of To-morrow. **6.40,** Talk: The Evening's Musical Programme. **6.50,** Concert of Light Music and Dance Music from the Café Berlin. **7.40,** Announcements. **7.45,** Pianoforte Recital by Artur Schnabel, relayed from the Philharmonie: Sonata in C Sharp Minor, Op. 27, No. 2 (Beethoven). **8.0,** Folk Songs. **8.30,** Pianoforte Recital by Artur Schnabel (contd.): Sonata in B Flat (Beethoven). **9.15,** Weather, News, and Sports Notes, followed by Light Music and Dance Music on Gramophone Records. **11.0** (also on **Zeesen, 31.38 metres**), Concert by the Berlin Wireless Orchestra, conducted by Eugen Jochum: Concerto grosso in G Minor (Händel); Symphony in D, Op. 36 (Beethoven).

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

279 metres; 14 kW.—**5.25 p.m.,** Humorous Talk with Songs. **6.0,** See **Prague.** **6.10,** Talk on Economics. **6.25,** See **Prague.** **7.5,** See **Brno.** **7.40,** See **Prague.** **8.10,** See **Brno.** **9.0,** See **Prague.** **10.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.**—**10.50 a.m.,** Concert by the Station Orchestra, conducted by Franz Marszalek: Tales from Strauss (Korngold); Selection from Aida (Verdi); Waltz, Die Kosenden (Lanner); Selection from The Geisha (Jones); Waltz, Grubenlichter (Zeller); Selection from The Land of Smiles (Lehár); Brise de mer (Leoncavallo); Three Bavarian Dances (Pachernegg). In an interval at **12.10 p.m.,** Weather Forecast. **12.45,** Time, Weather, News, and Sports Notes. **1.5,** Request Gramophone Concert: Movement from the Italian Caprice (Tchaikovsky); Waltz, Op. 39, No. 15 (Brahms); Two Tenor Solos from Lilac Time (Schubert-Berté); Soprano Solo from Katherina (Steffan); A Wedding Day on Troldhaugen (Grieg); Das Geheimnis (Blume); Two Old Bohemian Dances (Janacek); Polka from Schwanda the Piper (Weinberger). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Talk for Ramblers: The Winter is Past. **2.50,** Review of Books on the East German Frontier Problem. **3.10,** Violin and Pianoforte Recital: Suite, Op. 28, No. 1, for Violin and Pianoforte (Moser); Sonata in D Minor in Old Style, Op. 99 (Sinding). **3.45,** Concert from **Heilsberg.** **4.30,** Agricultural Prices, followed by Book Talk for Children. **4.45,** Swabian Legends. **5.0,** Review of Books about Wagner. **5.20,** Topical Programme. **5.35,** Talk for Workers: Trade Unions. **6.0,** Some Thoughts on the Problem of Race and its Relation to Forms of Government. **6.30,** Weather Forecast and Market Prices. **6.35,** The Nutcracker Suite (Tchaikovsky), on Gramophone Records. **7.0,** Swedish Folk Music, relayed from **Stockholm.** **7.35,** Käthchen von Heilbronn—Play (Heinrich Kleist). **9.5,** Time, Weather, News, Sports Notes, and Programme Announcements. **9.30,** Readings in Esperanto from Silesian Literature. **9.40,** Talk: Breslau's River Transport. **10.0** (approx.), Close Down.

BRNO

342 metres; 35 kW.—**3.10 p.m.,** Concert by the Station Orchestra conducted by B. Bakala. **4.10,** News for Young People. **4.20,** See **Prague.** **4.50,** Educational Talk. **5.0** Literary Review. **5.15,** See **Prague.** **5.25,** German Transmission: News and a One-Act Comedy. **6.0,** See **Prague.** **6.25,** 'Cello Recital by Milos Svoboda. **6.40,** Concert by a Village Band. **7.5,** Scene for Broadcasting. **7.40,** See **Prague.** **8.10,** Popular Concert by the Station Orchestra conducted by Jan Janota. Soloists: V. Kubiková and M. Svorcíková (Songs). **9.0,** See **Prague.** **10.0** (approx.) Close Down.

BRUSSELS (No. 1)

I.N.R.; 509 metres; 15 kW.—**12 Noon,** Concert by the Small Station Orchestra, conducted by P. Leemans. Soloists: M. Donliez (Pianoforte) and M. Wigy (Violin). Overture, A May Day (Wood); Narcissus (Nevin); Intermezzo from Le pavillon d'Armide (Tcherepnin); Selection from Samson and Delilah (Saint-Saëns); Pianoforte Solos (d'Agrèves): (a) Zamora, (b) Spanish Dance; Violin Solo: Croquis chinois (Leemans); Wedding Day on Troldhaugen (Grieg); Selection from Rose Marie (Friml-Stothart). **1.0 p.m.,** Journal Parlé. **1.10,** Modes of Travel in Music. Concert on Gramophone Records: En selle (Courtade); A mules (Charpentier); The Skaters' Waltz (Waldteufel); Eine lustige Schlittenfahrt (Eilenberg); En bateau (Debussy); La chaise a porteurs (Chaminade); Promenade en voiture (Alix); Polka, Les Belges en diligence (Closset); La voiture de la mariée (Ekman); Le dernier postillon (Giesse); Le petit chemin de fer (Zimmerman); Les fiacres de Vienne; Roman fait de l'automobile (Geisser); Rapid 13 (Van Marcy); Bahn frei (E. Strauss); Foxtrot, Choo, Choo (Malneck). **5.0,** Concert of French Operetta Music by the Radio Orchestra, conducted by Charles Walpot: Overture, Le postillon de Longjumeau (Adam); Selection from The Grand Mogul (Audran); Intermezzo from Cocorico (Ganne); Overture, Véronique (Messager); Selection from Le petit duc (Lecocq). **5.30,** Talk on Music. **6.0,** Talk on Cookery. **6.15,** Gramophone Concert: Jubel-Ouvertüre (Weber); Entry of the Gods into Valhalla, from The Rheingold (Wagner); Fantasia (Mozart); Mephisto-Walzer (Liszt). **6.45,** Chamber Music by E. Guillaume (Pianoforte) and M. Harvent (Violin): Fantasia for Pianoforte and Violin (E. Guillaume); Sonata for Violin and Pianoforte (E. Guillaume). **7.15,** Talk for Workers. **7.30,** Wireless Notes. **8.0,** Concert by the Symphony Orchestra, conducted by M. Meulemans. Soloist: Léon Guller (Violin). Overture, Anacréon (Cherubini); Concerto for Violin and Orchestra (Tartini); Concerto grosso (Corelli); Ballet of the Seasons (Verdi). **8.45,** Comments on the 8 o'clock Concert. **9.0,** Concert by the Radio Orchestra, conducted by Charles Walpot: March, Entry of the Gladiators (Fucik); Waltz, Je t'aime (Waldteufel); Potpourri, Suppé Illusionen (Michaelov); Gramophone Records: Le temps des cerises (Renard); Quand je t'ai donné mon cœur (Orban); Air from The Grand Mogol (Audran); Fêtons le printemps (Mambour); Oh, how I love Paris (Neville); Lying in the Hay, with Vocal Quartet (Mireille); Selection from White Horse Inn (Benatzky); Slow Waltz, Your Heart's mine (Heartly); Marching Song, Mandoline (May). **10.10,** Gramophone Concert. Part I, Dance Music. Part II, Symphony Music. **11.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish.—**12 Noon,** Gramophone Concert: Cavalry March (Strauss); Air for Trumpets, Kettle-Drums and Oboe (Lully); Tarass Boulba chez les Cosaques (Georges); Air from The Bird Fancier (Zeller); Variations on a Swiss Theme (Mohr); Le Passage du grand cerf (Blémant); You are my Heart's Delight from The Land of Smiles (Lehar); The Ride of the Valkyries, from The Valkyries (Wagner); Allegro barbaro (Bela Bartok); Jazz Music (Poot); Danse des plébéiens (Maquet); Regimental Marches; Overture, Preciosa (Weber). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans. Soloist: A Peers (Songs). The Cadets' March (Sousa); Selection from A Waltz Dream (O. Straus); Waltz, from Frühling im Wienerwald (Ascher); Songs: (a) 't Is stille (Van Hoof), (b) Bruiloftslied (De Boeck), (c) Jagerslied (Veremans); Selection from The Merry Peasant (Fall); Waltz from The Count of Luxembourg (Lehár). **5.0,** Concert by the Symphony Orchestra, conducted by A. Meulemans: March of the Nobles, from Tannhäuser (Wagner); Romanian Rhapsody (Enesco); Night on the Bare Mountain (Moussorgsky); March and Cortège from The Queen of Sheba (Gounod). **5.45,** Programme for Children. **6.30,** Schubert Concert on Gramophone Records: Melody from Rosamund; Die Allmacht; Liebesbotschaft; Ständchen; Wiegenlied; Ave Maria; Die Forelle; Moment Musical; Nachtgesang im Walde; Military March. **7.15,** Film and Book Reviews. **7.30,** Talk for Women. **8.0,** Reuskensrevue—a Revue in Three Parts (Schuerman), relayed from Borgerhout. In the interval, Le Journal Parlé. **11.0** (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—**4.0 p.m.,** Light Music and Romanian Music by the Dinico Orchestra. In the interval at **5.0,** News and Time Signal. **6.0,** Talk: The Historical Development of Romania. **6.30,** Relay from the Romanian Opera House. In the intervals, News.

BUDAPEST

550 metres; 18.5 kW.—Also relayed on **840 metres** from **5.45 to 11.0 p.m. 4.30 p.m.,** Popular Music on Gramophone Records. **5.15,** English Lesson. **5.45,** Concert by the Budapest Concert Orchestra, conducted by Wilhelm Komor: Overture, Der Schneemann (Korngold); Selection from Faust (Gounod); Algerian Suite (Saint-Saëns); Selection from Der Freischütz (Weber); Selection from The Violin Maker of Cremona (Hubay); Tanzszene (Glazunov). **7.0,** A Comedy (Bozyi). **8.45,** News, followed by Music by the Tarci Rácz Cigány Band. **10.15** Dance Music by the Leo Patat Band, with Songs by Nikolaus Vig, relayed from the Hotel St. Gellert. **11.0** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m. to 1.0 p.m.,** Concert from the Hotel d'Angleterre. **2.0,** Violin Recital by Else Marie Brunn: Legend

(Wieniavsky); Rêverie (Debussy); Souvenir (Drdla); Spanish Dance (Granados). **2.20,** Orchestral Concert from the Wivex Restaurant. **4.0,** Programme for Boys. **4.40,** Exchange and Market Prices. **5.0,** Town Hall Chimes. **5.2,** Talk: The Film as a Cultural Factor. **5.20,** English Lesson. **5.50,** Weather and News. **6.15,** Time Signal. **6.16,** Talk. **6.45,** Danish Lesson. **7.10,** Twenty-third Concert from the State Broadcasting Building. The Radio Symphony Orchestra, conducted by Prof. Nikolai Malko. Soloist, Willy Dromgraf Fassbaender (Baritone). The Fourth Symphony in F Minor, Op. 36 (Tchaikovsky); Aria from the Third Act of André Chénier (Giordano); Overture, Tancred (Rossini); Credo, from the Second Act of Othello (Verdi); Largo al factotum, from The Barber of Seville (Rossini); Concert Overture, Carnival, Op. 92 (Dvorák). **9.15,** News Bulletin. **9.30,** Reading. **9.50,** The Copenhagen Yachting Club Festival, relayed from the Lorry Etablissement. **12 Midnight,** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**12 Noon,** Light Music on Gramophone Records. **12.30, p.m.,** News Bulletin. **12.45,** Programme for Children. **6.0 to 7.0,** Programme in English by the I.B.C., C. Danvers Walker, R. Chene, and B. McNabb announcing. **6.0,** Hawaiian Band Concert for Brighton Listeners: Ay, ay, ay (Freire); Mari Mari (di Capua); Aloha Oe (Liliuokalani); O sole mio (di Capua); Hawaiian Hotel (Traditional); La Paloma (Yradier); Kilima (Traditional); My Waikiki Mermaid (Traditional). **6.30,** Ketelbey Concert for Hove Listeners: In the Camp of the Ancient Britons, Parts I and II; The Clock and the Dresden China Figures; In a Chinese Temple Garden, Parts I and II; Wedgwood Blue; The Sacred Hour; In the Mystic Land of Egypt. **7.0,** Local News and Popular Music on Gramophone Records. **7.30,** Radio Gazette. **8.0,** The Listeners' Half-Hour and News. **8.30,** Concert relayed from the Town Hall, Rouen. **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** The Empire Party; Selection from Happy Days; A Night of Happiness; Balls, Picnics and Parties; What are you thinking about?; It always starts to rain; Joey the Clown; Ali Baba's Camel; Selection from Popular Films; The Man from the South; Tom Thumb's Drum; Kiss me Good-night; Just one more Chance; Me; Pagan Serenade. **11.0,** Songs; Selection from The Hit Parade, Parts I and II; Only a Rose (Friml); Goin' Home; Song of the Vagabonds (Friml); Waiting at the end of the Road (Berlin); Medley of Old-time Music (arr. Griffiths). **11.30,** Organ Recital: Selection from Indian Love Lyrics (Woodforde-Finden); Selection from Les Millions d'Arlequin (Drigo); Bird Songs at Eventide (Coates); The Londonderry Air (Traditional); A Palace of Dreams (Waller); Ballet égyptien (Luigini). **12 Midnight,** Scottish Songs; The Glasgow Highlanders (Dyack); Duncan Grey; Loch Lomond; Johnnie Cope; Piper o' Dundee; Ye Banks and Braes; Kirkonnel Lea; Meg Merrilies (arr. Dyack). **12.30 a.m. (Friday),** Pianoforte Solos: Tuneful Melodies of To-day (Ray); I found you (Noble); Selection from The King of Jazz (Whiteman); Let love take care of you (van Phillips); Selection from Puttin' on the Ritz (Berlin); Popular Melodies (Ray). **1.0,** Humorous Music: Fall in and follow the Band; Don't look at me that way; Back to gay Paree; He's a good man to have around; Sally, I wonder what is really on his mind?; We're uncomfortable; I'm doin' what I'm doin' for love. **1.30,** Vocal Duets: Gipsy Moon (Borganov); I'm through with love; Shine on, Harvest Moon; Just one more chance; Lazy Pete (Kernsten); Save the last dance for me; Rosalita; Egyptianella. **2.0,** Variety Music: Love is the Sweetest Thing; Good Morning, Mr. Sun; I'll do my best to make you happy; Smile and sing your cares away; The Voice in the Old Village Choir; The Turning of the Tide; Where the Blue of the Night meets the Gold of the Day; Day by Day; An Evening in Caroline; Now that you're gone; By the Sycamore Tree; Blues in my Heart; Now's the Time to fall in love; Back again to happy-go-lucky days; Only me knows why. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.,) Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW., and **CASSEL, 245.9 metres,** and **TRIER, 259.3 metres.**—**2.30 p.m.,** Programme for Children. **3.50,** Exchange Quotations. **4.0,** Concert by the Wiesbaden Municipal Orchestra, relayed from the Kurhaus, Wiesbaden. Conductor: Herbert Albert. Overture, The Corsair (Berlioz); Danse macabre (Saint-Saëns); Selection from Die toten Augen (d'Albert); Suite from Carmen (Bizet); Emperor March (Wagner). **5.15,** Economic Notes. **5.25,** The German Arts and Crafts in the Present Depression—an Interview with a Goldsmith. **5.50,** Talk: Modern History. **6.15,** Time, Programme Announcements, Weather and Exchange. **6.20,** Talk: News from all Parts. **6.30,** See **Stuttgart.** **7.0,** See **Stockholm.** **7.35.** See **Stuttgart.** **9.5,** Time, News, Weather and Sports Notes. **9.20,** Bunte Stunde. Soloists: Albert Peters (Tenor), Justus Gellius (Flute), and Franz Hauck (Saxophone). **10.30** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse); **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.**—**6.0 p.m.,** Talk on Epidemics. **6.25,** Weather Forecast. **6.30,** Choral and Orchestral Concert, relayed from the Volksheim, Hanover. **7.45** (from **Bremen**), String Sextet for Two Violins, Two Violas, and Two 'Cellos (Brahms), relayed from the Lyzeum. **8.30,** Recital on Four Organs, relayed from St. Mary's Church, Lübeck. Commentary by Dr. Edeihoff. **9.10,** Time, Weather, News, Sports, and Police Notes. **9.30,** Topical Talk. **9.40,** Concert of Dance Music by the Station Chamber Orchestra, conducted by Gerhard Maass. Soloist, Richard Beckmann (Pianoforte). In an interval at **10.20,** Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres, 60 kW.; and **DANZIG, 453.2 metres.**—**12.5 p.m.,** Light Music on Gramophone Records. In the interval at **12.20,** News. **1.30 to 2.0,** Interval. **2.0,** Agricultural Prices and Exchange Rates. **2.30,** Programme for Children. **3.0,** Talk for Young People: In the Little-known Parts of Southern Arabia. **3.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Le Postillon de Longjumeau (Adam); Suite mignonne (Sibelius); Selection from Das Dorf ohne Glocke (Künneke); Waltz, Hofballtänze (Joh. Strauss); Selection from Der Tenor der Herzogin (Künneke). **4.45,** Talk by Dr. Carl Hagemann: My Native Bearers. **5.15,** Agricultural Prices. **5.20,** Ice Report. **5.30,** Agricultural Talk. **6.0,** Pianoforte Recital by Ernst Rudolph: Suite, Op. 24 (Gál); Sonatina, Op. 21 (Jokl). **6.30,** English Lesson for Beginners. **6.55,** Weather Report. **7.0,** Swedish Folk Music, relayed from **Stockholm. 7.35,** Contemporary Problems in Modern Literature (V): Unemployment. **8.35,** News. **8.40** (from **Danzig**), Octet in B Flat, Op. 156, for Flute, Oboe, Two Clarinets, Two Horns, and Two Bassoons (Lachner). **9.15,** Weather, News, and Sports Notes.

HILVERSUM

Announced **HUIZEN, 295.1 metres;** 20 kW. (7 kW. up to **4.40 p.m.**).—**11.55 a.m. to 1.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **11.55,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen: March (Wesly); Overture, Martha (Flotow); Lotusblumen (Ohlsen); Selection from Tiefland (d'Albert); Ballet Music from Hamlet (Thomas); Gramophone Records; Overture, Jean de Paris (Boieldieu); Suite, The Three Bears (Coates); Selection from Die Faschingsfee (Kálmán); Air from The Flying Dutchman (Wagner); The Cadets' March (Sousa). **1.40** till Close Down, Programme of the Christian Radio Society (N.C.R.V.). **1.40,** Lesson in Handicrafts. **2.40,** Talk for Women. **3.10 to 3.40,** Interval. **3.40,** Bible Reading followed by Recital by Mlle. de Jager (Songs) and M. Jurjaanz (Organ). **4.40,** Concert by the Columbia Three: De Fremersberg (Koenemann); Overture, Poet and Peasant (Suppé); Oriental Suite (Popy); Overture, Alessandro Stradella (Flotow). **5.25,** Handwork Lesson for Young People. **5.55,** Talk. **6.25,** Dressmaking Lesson. **6.40,** Press Review. **7.10,** Police Notes. **7.20,** Talk. **7.40,** Concert by the Utrecht Municipal Orchestra, conducted by Henri van Gonoever: Brandenburg Concerto, No. 3 (Bach); Overture, Figaro (Mozart); Symphony in B Flat, No. 102 (Haydn); Overture, Egmont (Beethoven). **8.40,** Talk for Parents. **9.10,** Concert (contd.): Overture, A Midsummer Night's Dream (Mendelssohn); Prélude à l'après-midi d'un faune (Debussy); L'Apprenti sorcier (Dukas); Till Eulenspiegel's Merry Pranks (R. Strauss). In the interval at **9.40,** News. **10.10,** Popular Music on Gramophone Records. **11.10** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres;** 8.5 kW.—**10.40 a.m.** till Close Down, Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **10.40,** Fashion Review. **11.10,** Recital by Marie Olsen (Soprano), Jan Blok (Baritone), and Egbert Veen (Pianoforte). **11.40,** Concert of Light Music by the Rentmeester Ensemble. **1.40 p.m.,** Talk for Women. **2.10,** Interval. **2.25,** Light Music on Gramophone Records. **2.40,** Fashion Talk. **3.25,** Gramophone Records (contd.). **3.40,** Programme for Hospitals. **4.10,** Recital of Czechoslovak Folk Songs by Marta Harlasova-Schrödlove. **4.40,** Programme for Children. **5.10,** Concert by the Wireless Orchestra, conducted by Nico Treep: Overture, Ten Maids and No Man (Suppé); Selection from Tannhäuser (Wagner); Waltz, Mon rêve (Wahlteufel); Drei Rosen (Niel); Orientzauber (Dicker); Turkish Tattoo (Volkmann); The Passing of Salomé (Joyce); Tout feu, toute flamme (Beger); March, Blue Devils (Williams); Waltz Rhapsody, Puszta-Legenden (Lindsay-Theimer); Rumpelstilzchen (Hartenhauer); Romance for Violin (d'Ambrosio); Gallop, Durchs Ziel (Translateur). In an interval at **6.10,** Sports Talk. **7.10,** English Lesson. **7.40,** Time Signal. **7.41,** News Bulletin. **7.45,** Light Music on Gramophone Records. **7.55,** Concert by the Concertgebouw Orchestra, conducted by Pierre Monteux. Soloist: Jo Vincent (Soprano): Symphony in E Flat (Haydn); Aria from Julius Cæsar (Händel); Selection from Alessandro (Händel); Symphony from The New World (Dvorák). **10.10,** Concert of Light Music by Kovacs Jajos and his Band. **10.40** (in an interval), Weather and News. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.0 p.m.,** Sports Notes. **6.15,** Announcements and Gramophone Records. **6.25,** Programme for Scouts. **6.30 to 10.0,** See **Warsaw. 10.0,** Dance Music relayed from the Astoria.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

473 metres; 60 kW.—**12 Noon,** Concert, conducted by Wolf: Overture, Britannicus (Scassola); Elegy (Suk); Rheinlegendchen (Mahler); Mendelssohn Potpourri (Urbach); Dance Suite (Mraczek); Selection from Faust (Gounod); Selection from The Three Wishes (Ziehrer); Waltz, Etincelles (Waldteufel). In the interval at **1.0 p.m.,** News. **1.30,** Sponsored Programme with Gramophone Records. **2.30,** Economic Notes and Time. **2.50,** Programme for Children. **3.20,** Notes on the Broadcasts for Schools. **3.30,** Botanical Talk. **4.0,** See **Frankfurt. 5.0,** Talk on Contemporary Literature. **5.20,** French Conversation. **5.40,** Weather, Time, Economic Notes, and Sports Results. **5.50,** Talk: The Retail Trader as the Party receiving Credit. **6.15,** Discussion on Health Insurance. **6.55,** News. **7.0,** Swedish Folk Music, relayed from **Stockholm. 7.35,** Brahms and Beethoven Concert by the Station Orchestra, conducted by Buschkötter. Soloist: Elly Ney (Pianoforte); Pianoforte Concerto in D Minor (Brahms); Symphony No. 7 (Beethoven). **9.5,** News and Sports Notes. **9.30,** Serenade and Dance Music, conducted by Eysoldt. **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN, 319 metres.**—**11.5 a.m.,** Gramophone Concert: König Karl—Marsch (Curath); March (Blon); Historic Marches; Waltz, Roses from the South (Joh. Strauss); Polka-Mazurka, Frauenherzen (Jos. Strauss); March, Zum Städtle hinaus (Meissner); Waldandacht (Franz Abt); Es wollt ein Mädchen früh aufsteh'n (Becker); Jägermarsch (Reckling); Regimental March (Latann); Geschwindmarsch (Joh. Strauss); Fröhliche Pfalz, Gott erhalt's (Gruss); Hohenfriedberger-Marsch (Frederick the Great). **12 Noon,** News, Weather, Snow Report, and Time, followed by Chamber Music on Gramophone Records. **1.0 p.m.,** Film Review. **1.30,** Talk: Education for the Unemployed. **2.0,** Programme for Children. **2.35,** Exchange and Market Prices. **3.0,** Concert by the Schwarzburg Orchestra of Rudolstadt: Overture, Peter Schmoll (Weber); Suite, The Taming of the Shrew (Zilcher); Waltz, Wiener Kinder (Jos. Strauss); Selection from The Tales of Hoffmann (Offenbach); Hungarian Rhapsody in F Minor, No. 14 (Liszt); Gasteiner-Walzer (Kern); Two Pieces for Small Orchestra, Op. 92 (Carl Schroeder): (a) Wiegenlied, (b) Serenade-Pizzicato. **4.30,** Weather and Time. **4.50,** Exchange Quotations. **5.0,** Talk on Hygiene. **5.15,** Notes for Taxpayers. **5.30,** Spanish Lesson. **5.50,** Talk (to be announced). **6.0,** Talk: Petroleum in International Politics. **6.30,** Concert of Operetta Music by the Leipzig Symphony Orchestra, conducted by Hilmar Weber. Soloists, Ilse Thomann (Soprano), and Bert Elken (Tenor); Extracts from Das Fürstenkind (Lehár); Overture, Der Operuball (Heuberger); Extracts from The Last Waltz (Oskar Straus). **8.0,** News Bulletin. **8.10,** Flucht in kreise—Radio Play, with Music (Hans Natonek). **9.40,** News Bulletin and Silent Night.

LINZ.—See **Vienna.**

LJUBLJANA

574.7 metres; 7 kW.—**6.0 p.m.,** Talk on Economics. **6.30,** The Letter Box. **7.0,** Symphony Concert. **9.0,** Time, News, and Popular Music on Gramophone Records.

LWOW

381 metres; 16 kW.—**6.5 p.m.,** Miscellaneous Items. **6.20,** See **Warsaw. 9.15,** Variety Programme. **11.0** (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South-East. **8.30,** The St. John Passion (Bach) for Soloists, Choir and Orchestra, relayed from the Salle Rameau. After the Programme, News.

MADRID

ARANJUEZ (EAQ); 30.43 metres; 20 kW.—**10.30 p.m.,** Variety Concert. **10.45,** Radio Chronicle. **11.0,** Variety Concert (contd.). **11.35,** Talk. **11.40,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, Programme for Children, and Request Gramophone Records. **8.15,** News Bulletin and Political Review. **8.30 to 9.0,** Interval. **9.0,** Linguaphone English Lesson. **9.30,** Chimes, Time Signal, and Political Review. **9.45** (approx.), Song Recital by Maria Strasse, followed by Band Concert, relayed from the Hotel Nacional. **11.45,** News Bulletin. **12.0 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**5.30 p.m.,** German Transmission: Talk and Reading. **6.0,** See **Prague. 6.40,** Brass Band Concert by Unemployed Musicians. **7.5,** See **Brno. 7.40,** See **Prague. 8.10,** See **Brno. 9.0,** See **Prague. 10.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**4.30 p.m.,** Grieg Concert. **5.30,** Kostechi, the Immortal—Opera (Rimsky-Korsakov). **8.0,** Talk in English: Review of the Week and Answers to Correspondents.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres;** and **Nürnberg, 239 metres.**—**3.30 p.m.,** Song and Pianoforte Recital by Gusti Sautor (Soprano), Erik Jörgensen (Baritone), and Friedericke Bucher (Pianoforte). Three Songs for Soprano (Schubert): (a) Heidenröslein, (b) Frühlingsglaube, (c) Die junge Nonne; Humoresque (Schumann); Four Songs for Baritone (Max von Schillings): (a) Botschaft, (b) Julinacht, (c) Wie wundersam, (d) Aus dem Nibelungen. **3.40,** Talk: Recent Developments in the Natural Sciences. **4.0,** Orchestral Concert: Overture, Lallah Rookh (David); Memories of Franz Abt (Manfred); Intermezzo, In der Spinnstube (Rhode); An der schönen grünen Narenta (Komzak); Selection from Gri-Gri (Lehár); Spanish March, Cadiz (Valverde). **5.15,** Vocational Talk: The Apprentice in the Chemical Industry. **5.35,** Agricultural Talk. **5.55,** Time, Weather, and Agricultural Notes. **6.5,** Recital of Shakespeare's Songs, by Martha Martensen (Soprano) and Otto Goebel (Bass); The Willow Song from Othello (Anon); A Lover and his Lass, from As you Like it (Anon); Where the Bee sucks, there lurk I, from The Tempest (R. Johnson); To Sylvia, from The Two Gentlemen of Verona (Schubert); Drinking Song from Antony and Cleopatra (Schubert); When that I was and a little tiny boy, from Twelfth Night (Schumann); Bottom's Song, from A Midsummer Night's Dream (Hugo Wolf); Three Songs of Ophelia, from Hamlet (R. Strauss): (a) How shall I my true love know? (b) Tomorrow is St. Valentine's Day, (c) They bore him barefaced on the Bier; Two Sonnets (Beer-Walbrunn). **6.35,** Talk: The Lake Country of Central Celebes. **7.0,** Swedish Folk Music, relayed from **Stockholm. 7.35,** Concert of Viennese Music by the Weiser Band, Hermann Leopoldi, and Betja Milescaja. **8.10,** Concert by the Station Choir and Orchestra, conducted by Hans Winter. Soloists: Karl Erb (Tenor) and Jani Szanto and Anton Huber (Violins). Overture, Don Giovanni (Mozart); Concerto for Two Violins and Orchestra (Marx); Psalmus Hungaricus for Tenor, Choir, and Orchestra (Kodaly). **9.20,** Time, Weather, News, and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres;** and **Rjukan, 447.1 metres.**—**4.0 p.m.,** Relay of European Stations. **5.0,** German Lesson. **5.30,** Divine Service. **6.0,** Announcements, Weather and News. **6.30,** Popular Music. **7.0,** Time Signal. **7.1,** Agricultural Programme. **7.30,** Song and 'Cello Recital by Mme. Valborg Landborg (Soprano) and M. Karoly Farkas. Romance; Cavatina (Raff); Hungarian Rhapsody (Salesski); Tarantella

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MARCH 16th **THURSDAY** *continued*

(Popper). 8.15, Talk. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Relay of European Stations. 11.0 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—**7.0 p.m.**, Dopolavoro Notes, Agricultural Talk, and Giornale Radio. **7.20**, Popular Music on Gramophone Records. In an interval at **7.30**, Time and Announcements. **7.45**, Vocal and Orchestral Concert. **8.30**, Fra canti e suoni—One-Act Comedy (La Lomia). **9.0**, Concert (contd.). **9.55**, News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.**, Le Journal Parlé. **7.20**, Weather Report. **7.30**, Gramophone Concert: Overture, Gwendoline (Chabrier); Rondé villageoise (Chabrier); Joyeuse marche (Chabrier); Bourrée fantasque (Chabrier); Petite Suite (Debussy); Pavane pour une Infante défunte (Raval); Rhapsody, España (Chabrier); Overture, Zampa (Hérold); Songs from The Drum Major's Daughter (Offenbach); Melody (May); Valse amoureuse (Sylviano); Le Chanson des Pensplier (Goublier); La Voix des Chênes (Goublier); Selection from Hans the Flute Player (Ganne); Arrongoncia andaluza (Bruguera); Pasodoble, Garbo gitanos; La Houssarde (Ganne).

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**6.45 p.m.**, Journal Parlé. **7.0**, Programme for Children. **7.30**, Popular Music on Gramophone Records. **7.40**, Duets by Pills et Tabet. **8.0**, Agricultural Talk. **8.15**, Interval. **8.30**, L'Affaire Lafarge—Play (Coguat). **10.30**, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—**6.45 a.m.**, Physical Culture. **7.30**, Weather and Physical Culture (contd.). **7.45**, Gramophone Records. **8.0**, Press Review and Weather. **12 Noon**, Protestant Address. **12.30 p.m.**, Orchestral Concert: Gitanerias (Infante); Romance bohémienne (Boldi); Neapolitan Festival (Wesley); Ukrainian Pictures (Akimenko). **1.0**, Exchange, News and Weather. **1.5**, Concert by the A Camera Vocal Quartet. **1.30**, Exchange. **1.35**, Orchestral Concert: Selection from The Pink Lady (Caryll); Song (Wachsmann); One Hour with you (Whiting); Selection from No, No Nanette (Youmans). **2.0**, Exchange. **3.45**, Exchange and Market Prices. **5.45**, Agricultural Report. **6.0**, Address by the Reverend Marc Boegner, relayed from the Reformed Church, Passy. **7.0**, Talk on French Poetry since 1870: Corbière, Laforgue, Jammes and Viele-Griffin. **7.20**, Orchestral Concert: Kermesse villageoise (Filippucci); Nel Grappone (Ganne); Premiers Rythmes espagnols (Laparra). **7.45**, Commercial Prices, News and German Press Review. **8.0**, Le Gendre de Monsieur Poirier—Comedy (Augier). In the interval at **8.30**, News and Weather, at **8.40**, Review by Bonmaud, and at **9.15**, Press Review and News. **10.0**, Concerto No. 2 in C Minor (Rachmaninov) on Gramophone Records, by the Philadelphia Symphony Orchestra, conducted by Stokowski, with the Composer at the Pianoforte.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.**, Work-a-day Thoughts. **9.5**, Business News. **9.15**, Programme to be announced. **9.30**, Weather Report. **9.32**, Market Reports. **9.45**, Blue Ridge Buddies. **9.57**, David Lawrence Dispatch. **10.0**, Programme to be announced. **10.15 to 11.15**, **New York** Relay. **10.15**, The Adventures of Dr. Doolittle. **10.30**, Singing Lady. **10.45**, Little Orphan Annie. **11.0**, Our Daily Food—George Rector's Cooking School. **11.15**, Time Signal. **11.16**, Weather Report. **11.17**, Teaberry Sport Review. **11.22**, Press News Reeler. **11.27**, Strange Facts. **11.29**, Temperature Report. **11.30**, KDKA Orchestra. **11.45 to 12.30 a.m. (Friday)**, **New York** Relay. **11.45**, To-day's News, by Lowell Thomas. **12.0 Midnight**, Pepsodent Amos 'n' Andy. **12.15 a.m.**, Carson Robison and his Barbasol Buckaroos. **12.30**, The Fireflies. **12.45**, The Townsend Murder Mystery. **1.0 to 3.30**, **New York** Relay. **1.0**, Captain Diamond's Adventures. **1.30**, Time Signal and Rin Tin Tin Thrillers. **1.45**, Thurston, the Magician. **2.0**, Death Valley Days. **2.30**, Wayne King's Orchestra, with Lady Esther. **3.0**, Wilfred Glenn (Basso). **3.15**, Vic and Sade. **3.30**, The 1933 Income Tax, by Robert L. Wickline. **3.45**, Bradley Kincaid, from **New York**. **4.1**, Teaberry Sport Review. **4.11**, Temperature Report. **4.12**, Weather Report. **4.13**, KDKA Artist Bulletin. **4.15**, Press Last Minute News Flashes. **4.20**, Bertha Schmid (Soprano). **4.30**, Josef Lhevinne (Concert Pianist), from **New York**. **5.0**, KDKA Artist Bulletin. **5.2**, Smith Ballew and his Orchestra. **5.30**, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.**, See **Brno.** **4.10**, Talk on Economics. **4.20**, Programme for Children. **4.50**, Light Music on Gramophone Records. **5.5**, Talk for Bee Keepers. **5.15**, Talk for Workers. **5.25**, News in German. **5.30**, German Transmission: Agricultural Talk. **6.0**, Chimes. **6.1**, News Bulletin. **6.19**, English Lesson. **6.25**, Talk: From the Earth to the Stars. **6.40**, Popular Programme. **7.5**, See **Brno.** **7.40**, Sonata in G Op. 30 No. 3 for Violin and Pianoforte (Beethoven) by Stanislav Novak and Karel Sole. **8.0**, Time Signal. **8.10**, See **Brno.** **9.0**, Time Signal. **9.1**, News Bulletin. **9.15**, Pianoforte Recital by Dr. Vaclav Holzknecht: Little Pianoforte Suite Op. 12 (Jirak); Sonatina for Pianoforte Op. 11 (Janacek); Kaleidoscope Op. 18 (Goossens). **10.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW; **LAUSANNE, 680 metres**; and **GENEVA, 760 metres.**—**5.20 p.m.** (from **Geneva**), Esperanto Lesson. **5.35** (from **Lausanne**), Italian Lesson. **6.0** (from **Geneva**), Weather Forecast, News Bulletin and Announcements. **6.15** (from **Geneva**), Answers to Correspondence. **6.30** (from **Geneva**), Theatre Notes. **7.0** (from **Geneva**), Talk: The Work of the League of Nations. **7.25** (from **Geneva**), Introductory Talk to the following Transmission. **7.35** (from **Geneva**), Symphony Concert by the Station Orchestra, conducted by M. Baud-Bovy. Soloist: Mlle. Blanche Honegger (Violin) and M. Henri Honegger ('Cello); Suite No. 4 in D Minor (Bach); Concerto for Violin, 'Cello and Orchestra (Brahms); Suite for Orchestra, Baritone and Four Female Voices, Israël (Bloch). In an Interval at **8.15** (approx.), News Bulletin and Weather Forecast. **9.15** (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—**8.30 p.m.**, Weather Report. **8.40**, Musical Programme and Announcements. **9.0**, Chimes. **9.2**, News Bulletin. **9.30**, Reading. **10.0**, Concert by the Station Quartet. Soloist: Georg Takács (Violin). After the Concert, Overture, A Midsummer Night's Dream (Mendelssohn), on Gramophone Records.

RJUKAN. See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres**; and **2RO, 25.4 metres.**—**6.45 a.m.**, Gymnastics. **7.15 to 7.30 a.m.**, Giornale Radio and Announcements. **11.30**, Weather and Light Music on Gramophone Records. **12 Noon**, Time and Announcements. **12.2**, Humorous Talk. **12.5 to 1.15**, Concert from **Turin.** In the interval at **12.30**, Giornale Radio and Exchange. **3.45**, Children's Radio Review. **4.10**, Announcements. **4.15**, Exchange and Giornale Radio. **4.30 to 5.15**, Orchestral Concert: Overture, The Barber of Seville (Rossini); Valse triste (Carabella); Selection from Francesca da Rimini (Zandonai); Suite for Two Pianofortes, A Masked Ball (Palmgren); Tango, Ich bin in dein Parfum verliebt (Fall); Chiaroscuri (Cerra); Violetta (Rust); Lena (Culotta). **6.0 (Naples)**, Shipping and Sports Notes. **6.10**, Agricultural and Dopolavoro Notes. **6.20**, Giornale Radio. **7.0**, Time and Announcements. **7.15**, Light Music on Gramophone Records. **7.30**, Sports Notes and Tourist Report. **7.45**, Brahms Symphony Concert, conducted by Rito Seivaggi; Soloist, Giulio Riccardi (Violin): The Second Symphony in D; Concerto in D for Violin and Orchestra; Hungarian Dances. In the intervals, Review of Literature and Art and Notes on Art. **9.55**, News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres**, and by **W2XAD** on **19.56 metres.**—**12 Midnight**, Mr. Twister, from **New York.** **12.15 a.m. (Friday)**, Stock Report. **12.30** till Close Down, **New York** Relay. **12.30**, Donald Novis (Tenor). **12.45**, The Goldbergs. **1.0**, Fleischmann Hour. **2.0**, Captain Henry's Show Boat. **3.0**, Lucky Strike Hour, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER; 459 metres; 60 kW.; **BASLE, 244.1 metres**; and **BERNE, 245.9 metres.**—**11.28 a.m.**, Time Signal from Neuchâtel Observatory. **11.30**, Weather Forecast and News Bulletin. **11.40** (from **Basle**), Popular Music on Gramophone Records. **12 Noon** (from **Basle**), Talk on Welfare Work. **12.15 p.m.**, Gramophone Concert (contd.). **12.35 to 12.45**, Weather and Exchange. **2.30** (from **Berne**), Light Music on Gramophone Records. **4.0** (from **Berne**), Chamber Music on Gramophone Records. **4.30 to 4.35**, Weather Forecast. **5.30** (from **Basle**), Talk for Workers. **6.0**, Time Signal, Weather Forecast, and Traffic Report. **6.15** (from **Basle**), Italian Lesson. **7.0** (from **Basle**), Concert by the Basle Chamber Orchestra. Soloists: Gertrud Flügel (Violin), Hans Bauer ('Cello), and Martha Hamm-Stoecklin (Harpsichord). **8.30**, Weather and News. **8.40** (from **Basle**), Concert by the Hans Glock Orchestra. **9.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres, 55 kW. Relayed by **Boden, 1,229.5 metres**; **Göteborg, 322 metres**; **Hörby, 257 metres**; **Motala, 1,354.4 metres**; **Ostersund, 770 metres**; and **Sundsvall, 542 metres.**—**3.45 p.m.**, Shorthand Lesson. **4.5** (from **Boden**), Studio Service. **4.30**, Programme for Children. **4.45**, Light Music on Gramophone Records. **5.45**, Elementary English Lesson, relayed from **Jönköping, 201.3 metres.** **6.30** (from **Göteborg**), Talk. **7.0**, Swedish Folk Music. **7.35**, Microphone Report. **7.50**, Military Band Concert, conducted by Oscar Johnson, relayed from **Gävle, 204 metres.** **9.0**, Concert of Light Music. **10.0** (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.**, Gramophone Concert: Overture, Light Cavalry (Suppé); Selection from I Pagliacci (Leoncavallo); Two Arias from Rigoletto (Verdi); Prelude and Entr'actes between Acts I, II and IV of Carmen (Bizet); Seguedilla and Habanera from Carmen (Bizet); Selection from Faust (Gounod); Jewel Song, Ballad and Ballet Music from Faust (Gounod). **12.45 p.m.**, News. **1.0**, Time and Exchange. **1.5**, Dance Music on Gramophone Records. **2.0**, Programme for Children. **3.0 to 4.15** Interval. **4.15**, French Elocution Lesson. **4.30**, Programme for Children, relayed from **Bordeaux-Lafayette.** **6.0**, Talk in German: Legends of the Saints in the Middle Ages. **6.15**, Talk for Women. **6.30**, Orchestral Concert, conducted by Maurice de Villers: Ballet Music from Hamlet (Thomas); Overture, Phèdre (Massenet); Extract from La vie du poète (Charpentier); Selection from Pepita Jiménez (Albeniz); Spanish Dance, Zambra (Granados); Marche Orientale (Granados). In the intervals at **7.30**, Time, and at **7.45**, News. **7.50** (approx.), Concert (contd.): Overture, La fête du village voisin (Boieldieu); Selection from Coppélia (Delibes); Waltz des brumes (Ganne); Bohemian March (Chauvet). **8.20**, Lottery Results. **8.30**, Orchestral Concert, relayed from **Sarreguemines.** Soloist: M. Grégoire (Violin). Overture, Il Seraglio (Mozart); Concerto for Violin and Orchestra (Beethoven); Symphony in E Flat (Mozart); Grave (Friedemann-Bach); Violin Solos: Prelude and Allegro (Pugnani); Hofballtänze (Lanner). **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.**—**12.30 p.m.**, Gramophone Concert of Folk Songs. **1.0**, Musical Programme, arranged by the Post Office. **1.30**, Spanish Lesson. **2.0**, Elementary English Lesson. **2.30**, See **Frankfurt.** **3.30 to 4.0**, Interval. **4.0**, See **Frankfurt.** **5.15**, Time, Weather, and Agricultural Notes. **5.25**, Talk: The Alsatian Lyric of the Nineteenth Century. **5.50** (from **Mannheim**), Talk on Ready Reckoning. **6.15**, Time and News. **6.30**, Violin Recital by S. Frydberg: Suite in A Minor (Sinding); Adagio from Sonata No. 3 (Bach); Larghetto from Sonata No. 4 (Handel); Albumblatt (Wagner-Wilhelmy); Romance (Glière); Etude 24 (Paganini-Kreisler); Russian National Anthem (Frydberg). **7.0**, See **Stockholm.** **7.35** (from **Mannheim**), The Czarina's Slippers—Operetta (Tchaikovsky). **9.5**, Time, News, Weather and Programme Announcements. **9.20**, Concert of the Music of Arthur Stubbe: Brunhild Möckesch (Soprano), Trante Zarges (Pianoforte), and Kurt Krause (Violin): Bedenke, Mensch; Schlaf ein, mein Kind; Heimkehr; Maiglökchen am Waldesrain; Sonata in F for Violin and Pianoforte; Dämmerstunde; Am Abend; Heideblumen; Pythia. **10.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—**6.0 p.m.**, News Bulletin. **6.15**, Hunting Horn Music. **6.30**, Programme for Children. **7.0**, Chansonnettes. **7.15**, Racing Results, Market Prices, and News. **7.25**, Local News. **7.30**, Three Pieces by a Viennese Orchestra. **7.45**, Popular Melodies. **8.0**, Sound Film Music. **8.15**, Accordion Music. **8.30**, Instrumental Music. To Spring (Grieg); Wien bleibt Wien (Schrammel). **8.45**, Extracts from The Barber of Seville—Opera (Rossini). **9.30**, 'Cello Solos: (a) Allegro appassionata (Saint-Saëns), (b) Le Cygne (Saint-Saëns), (c) Agnus Dei (Bizet). **9.45**, Popular Orchestral Concert. **10.15**, North African News. **10.30**, Concert for Listeners in Morocco. Operetta Potpourri (Misraki); Melody (Tagliafico); Violin Solo: Waltz Caprice (Wieniawsky); Berceuse from Mignon (Thomas); Invitation to the Waltz (Weber). **11.0**, Orchestral Music. **11.15**, Airs from Operetta. **11.30**, (a) The Drum Major's Daughter (Offenbach), (b) Elle est à vous (Yvain), (c) Une nuit au Louvre (Orgel). **11.30 to 12 Midnight**, Programme in English by the I.B.C. H. K. Hitchcock announcing. **11.30**, I.B.C. Half Hour. Always in my Heart; Here lies Love; Till to-morrow; Please; When the Morning rolls around; Try a little Tenderness; How are You; Let's all dance the Polka. **11.57**, I.B.C. Good-night Melody. **12 Midnight**, Weather Announcements. **12.5 a.m. (Friday)**, Sound Film Music. **12.15**, Symphony Music. **12.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**4.10 to 6.0 p.m.**, See **Turin.** **6.0**, Light Music on Gramophone Records. **6.20** till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres**; **Genoa, 312.8 metres**; and **Florence, 500.8 metres.**—**4.10 to 5.0 p.m.**, Orchestral Concert: Overture, Cleopatra (Mancinelli); Ronde des viveurs (Billi); Basque Rhapsody (Pierné); The Witch's Ride, from Hansel and Gretel (Humperdinck); Selection from Gloria (Cilea). **5.35**, Giornale Radio, Agricultural and Dopolavoro Notes. **6.0**, Light Music on Gramophone Records. **6.20**, Giornale Radio. **6.30**, Time, Announcements, and Variety Music on Gramophone Records. **7.0**, Giornale Radio, Weather and Gramophone Records (contd). **7.30** (approx.), Simon Boccanegra, Opera in Three Acts (Verdi), relayed from the Scala, Milan. In the Intervals, Talk, Literary Notes, and Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and **50.26 metres** (Evening); 10 kW.—**10.0 to 10.15 a.m.**, Religious Information in French. **7.0 to 7.15 p.m.**, Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres**; **Innsbruck, 283 metres**; **Klagnfurt, 453.2 metres**; **Linz, 245.9 metres**; and **Salzburg, 218.5 metres.**—**3.50 p.m.**, Concert, The Schwartz Trio, Lucia Ivanovic (Soprano), Anny Wimberger (Contralto), and Hans Weber (Pianoforte); Pianoforte Solos: Prelude, Choral and Fugue (Franck); Soprano Solos (Schubert), (a) Ave Maria, (b) Das Rosenband; Soprano Solos (Schumann), (a) Erstes Grün, (b) Frühlingstaucht; Contralto Solos (Schubert), (a) Der Zwerg, (b) Erlkönig; Contralto Solos, Kleiner Haushalt (Loewe); Contralto Solos (Wolf), (a) Der Feuerreiter, (b) Storchenbotschaft; Trio in E for Pianoforte, Violin, and 'Cello (Mozart). **5.5**, Talk: Karl Marx and Women. **5.30**, Talk, arranged by the Board of Trade. **5.50**, French Lesson. **6.15**, Theatre Notes. **6.20**, Time, Weather, and Programme Announcements. **6.30**, Reading (Molnár). **7.0**, Swedish Folk Music, relayed from **Stockholm.** **7.30**, Opera Music by the Vienna Symphony Orchestra, conducted by P. S. di Valcrociata; Soloist, Hedwig von Debicka (Soprano): Overture, Figaro (Mozart); Aria from Paris and Helen (Gluck); Pamina's Aria from The Magic Flute (Mozart); Overture, Semiramis (Rossini); Aria, Regnava nel silenzio from Lucia di Lammermoor (Donizetti); Aria, Mother, compassionate Virgin, from the Force of Destiny (Verdi); Ballet Music and Aria from Faust (Gounod); Two Entr'actes from Carmen (Bizet); Aria, Vissi d'arte, vissi d'amore, from Tosca (Puccini); Overture, Le Maschere (Mascagni). In the interval at **8.50**, News, Weather, and Announcements. **9.5**, Snow Report. **9.20**, Dance Music by the Karl Machek Jazz Band, relayed from the Café Sacher; Vocal Refrains by Ernst Schön.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.**, Time Signal and Bugle Call from St. Mary's Church, Cracow. **11.5**, Programme Announcements. **11.10**, Light Music on Gramophone Records. **11.30**, Weather Forecast. **11.35**, Concert for Schools by the Warsaw Philharmonic Orchestra, conducted by C. Wilkomirski and Choir, and A. Dobosz (Tenor). Introductory Talk by M. Szczerba. Polish National Anthem; Polonaise in A (Chopin); Overture, Flys (Moniuszko); Tenor Solos: (a) Two Military Songs (Szymanowski), (b) Three Military Songs (Niewiadomsky); Polish Military Music (Rybicki); Mazurka from The Haunted Castle (Moniuszko); March (Moskowsky); Choir: Song (Mayzner); Cantata (Grubersky-Mayzner); Four Military Songs (arr. Mayzner); Military Music (arr. Gozukowsky). **1.0 to 2.10**, Interval. **2.10**, Announcements **2.15**, Economic Notes. **2.25**, Light Music on Gramophone Records. **3.35**, Talk on Women's Clubs. **2.50**, Popular Music on Gramophone Records. **3.25**, Intermediate French Lesson. **3.40**, Talk: Are the sins of the Fathers visited on their Children? **4.0**, Chamber Music on Gramophone Records. In the interval, Announcements. **4.40**, Topical Talk. **4.55**, Programme Announcements; Educational Talk. **5.20**, Current Events. **5.25**, Light Music. **6.0**, Miscellaneous Items. **6.20**, Agricultural Talk. **6.30**, Reading. **6.45**, Radio Journal. **7.0**, Concert of Light Music by the Station Orchestra, conducted by S. Nawrot. Soloist: Mme. L. Messal (Songs). In the interval, Sports Notes and Radio Journal. **8.30**, Romeo and Juliet—Drama (Shakespeare), arranged for Broadcasting by M. Melina. **9.15**, Dance Music. **9.55**, Weather Forecast for Aviation and Police Notes. **10.0**, Dance Music.

ZURICH.—See **Schweizerischer Landessender.**

FRIDAY

MARCH THE SEVENTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Two miniature operas: "Bastien and Bastienne" and "The Impresario," by Mozart. "Ireland," a programme for St. Patrick's night.
LONDON REGIONAL	"L'Ami Fritz," by Allan MacLean, taken from the French of Erckmann-Chatrian.
MIDLAND REGIONAL	Speeches from the Sales Managers' Association's Dinner at Leicester.
BELFAST	"Ireland," a St. Patrick's Night programme.

ABROAD

ATHLONE	6 p.m. Special All-Irish programme.
BERO-MUNSTER	7 p.m. Opera: "Manon Lescaut" (Puccini), from Berne.
HAMBURG	7 p.m. Musical play: "White Horse Inn," by Benatzky.
OSLO	7 p.m. Symphony concert from Logen Hall.
PALERMO	7.45 p.m. Opera: "Manon," by Massenet.
RADIO PARIS	9 p.m. "Tire-au-flanc," vaudeville from the Theatre Dejazet.
ROME	3 p.m. Concert from Santa Cecilia Royal Academy.
STRASBOURG	9 p.m. Concert from the Conservatoire, Toulouse.
STUTTGART	7.5 p.m. Wagner concert from the Liederhalle.
TURIN, MILAN, and TRIESTE	8 p.m. Symphony concert, conducted by F. Previtali. Solo pianoforte: Arthur Rubinstein.

ALGIERS

363.3 metres; 13 kW.—**7.10 p.m.,** Sports Notes. **7.15,** Agricultural Talk. **7.30,** Agricultural Report and Weather Forecast. **7.45,** Viennese Music. **7.55,** News Bulletin. **8.0,** Time Signal. **8.20,** Talk: The Sahara. **8.15,** César Franck and Vincent d'Indy Concert by the Station Orchestra. Soloist: Mme. Raymonde Brichet (Pianoforte): Suite in D (d'Indy); Symphonic Variations for Pianoforte and Orchestra (Franck). **8.45,** News. **8.50,** Concert (contd.), Symphonic Legend, La Forêt enchanté (V. D'Indy); Symphonic Piece, Rédemption (Franck). **9.35** (approx.), News. **9.40,** Light Music. **9.55,** News. **10.0,** Dance Music relayed from the Hotel Alettio. **11.0** (approx.), Close Down.

ATHLONE

413 metres; 60 kW.; and **CORK, 224.4 metres.—6.0 to 10.30 p.m.,** Special Irish Programme of Vocal and Instrumental Music. **10.30** (approx.), Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations. **8.0,** Light Music on Gramophone Records and News. **9.0,** Chimes from the Cathedral, Weather Forecast, Messages to Seamen, Exchange Quotations, and Market Prices. **9.10,** Concert by the Station Orchestra: Overture, Raymond (Thomas); Selection from El Domino azul (Arrieta); Waltz-Intermezzo (D'Ambrosio); Dance from Scenes napolitaines (Massenet); Ständchen (R. Strauss); Indian Wedding (Percy). **10.0,** Reading. **10.15,** Orchestral Concert, relayed from the Café Español. **11.0** (in an interval). News. **12 Midnight** (approx.), Close Down.

BARI

269.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes, Tourist Talk, and Dopolavoro Notes. **7.20,** Giornale Radio and Weather. **7.30,** Time and Announcements. **7.35,** Concert of Opera Music. Soloists: De Santis Bruno (Soprano) and Lino d'Angelo (Baritone). Overture, Diana (Cabella); Soprano Aria, You'd fain be hearing, from A Masked Ball (Verdi); Selection from Francesca da Rimini (Zandonai); Baritone Solo, Visione fuggitiva, from Hérodiade (Massenet); Soprano Solo, Micaëla's Song, from Carmen (Bizet); Selection from Fedora (Giordano); Overture, Gloria (Frontini); Baritone Solo, Vien, Leonora, a piedi tuoi, from La Favorita (Donizetti); Intermezzo from The Jewels of the Madonna (Wolf-Ferrari); Soprano Solo from Loreley (Catalani); Baritone Solo from L'Africaine (Meyerbeer); Elegiac Prelude (Galli-David); Soprano Solo from Mephistopheles (Boito); Selection from Falstaff (Verdi). In the interval, Theatre Notes and Talk on Sports. **9.30,** Concert from the Grand Hotel Moderno. **9.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

330.4 metres; 2.8 kW.—**4.0 p.m.,** Talk. **5.55,** Time and Programme Announcements. **6.0,** Song Recital: Wiegenlied (Brahms); Arias (Puccini) from (a) Gianni Schicchi, and (b) Manon Lescaut; Divna si (Bajic); Se tu canti (Tosti); Aria from Manon (Massenet); Lolita (Buzzi-Peccia). **6.30,** Talk for Sokols. **7.15.** See **Warsaw. 9.15** (approx.), News, followed by Cigány Music by the Rudnicanin Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert from **Berlin (Witzleben). 2.0,** Talk for Girls. **2.30,** Weather and Exchange. **2.45,** Reading (Hans Grimm). **3.0,** Talk: Agricultural Colleges and their Standing in Rural Educational Schemes. **3.30,** See **Leipzig. 4.10,** Talk on Health. **4.30,** Talk: The Great Wall of China—a World's Wonder. **5.0,** Pianoforte Recital by Alice Jacob-Loewenson: Sonata (Cimarosa); Christmas Sonatina (Busoni); Four Duets (Bach). **5.30,** Talk for Workers: Social or Private Insurance? **5.55,** Weather and Announcements. **6.0,** Talk: How should Foreign Words be pronounced in German Broadcasting? **6.30,** A Poem. **6.45,** Talk by Kurt G. Sell: What they are talking about in America, relayed from **America** (on Gramophone Records). **7.0,** See **Hamburg. 9.15,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Concert from **Berlin (Witzleben). 11.0** (approx.), Close Down

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**5.55 p.m.,** The Witzleben Station informs its Listeners . . . . **6.0,** See **Berlin (Konigs Wusterhausen). 6.25,** Topical Talk. **6.35,** Sepp Summer sings Songs to the Lute. **6.45,** Talk on Gramophone Records: What People are talking about in America. **7.0,** Songs to the Lute (contd.). **7.25,** Announcements. **7.30,** Pianoforte Duet in E Flat (Mozart) by Bruno Seidler-Winkler (Pianoforte), Franz von Szpanovsky (Violin), Willy Fiala (Viola), and Julius Berger (Cello). **8.0,** Andreas Hollmann—Radio Play (Hans Kaergel). **9.15,** Weather, News, and Sports Notes. **9.30,** On an Ether-Wave Expedition—a Laboratory Report. **9.40** (approx.), Dance Music from the Wilhelmshallen at the Zoo. **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

279 metres; 14 kW.—**5.40 p.m.,** Light Music on Gramophone Records. **5.45,** Slovak Spelling Lesson. **6.0** till Close Down, See **Prague. 9.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.—12.10 p.m.,** Japan in Opera and Operetta—Gramophone Concert: Selection from The Mikado (Sullivan); Two Soprano and Tenor Duets from Madame Butterfly (Puccini); Soprano Solo from Madame Butterfly (Puccini); Mimosa Waltz from The Geisha (Jones). **12.45,** Time, Weather, News, and Exchange. **1.5,** Gramophone Concert: Introduction and Ronda capriccioso (Saint-Saëns); Serenade (Saint-Saëns); Rondo allegro from Eine kleine Nachtmusik (Mozart); Sérénade mélancolique (Tchaikovsky); Spanish Caprice (Moszkovsky); Rondo from the Trio in B Flat (Schubert); La Capricieuse, Op. 17 (Elgar); Valse caprice (Rubinstein). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Talk for Young People: Enlarging Photographs. **3.10,** Talk: The Art of Portraiture and its Development. **3.35,** Concert of Light Music by the Station Orchestra, conducted by Franz Marszalek: Selection from Rienzi (Wagner); Waltz, Heimatgrüsse (Kraus); Two Old Folk Melodies (arr. Macho); Selection from Der Teufelsreiter (Kálmán). **4.30,** Agricultural Prices. **4.35,** Literary Talk: Wilhelm Michel. **5.0,** Talk on Trade Schools. **5.30,** Topical Talk. **6.0,** See **Berlin (Konigs Wusterhausen). 6.25,** Agricultural Prices, followed by Light Music on Gramophone Records. **6.45,** Talk: What People are talking about in America, relayed from **America. 7.0,** Concert by the Silesian Philharmonic Orchestra, conducted by Max von Schillings: Romantic Suite (Max Reger); A Tone Poem for Small Orchestra, Ein Zwiegespiach (M. von Schillings); Harvest Festival from Moloch (M. von Schillings); The Second Symphony in C, Op. 61 (Schumann). In an interval at **8.10,** News Bulletin. **9.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **9.25,** Talk. **9.40,** Concert of Light Music and Dance Music by the Station Orchestra, conducted by Franz Marszalek, with Song Refrains by Hellmut Hallendorf (Tenor). **11.0** (approx.), Close Down.

BRNO

342 metres; 35 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by Jan Jamota. **3.55,** Theatre Notes. **4.5,** See **Prague. 5.5,** Talk: Creative Art. **5.15,** Talk for Workers. **5.25,** German Transmission: News, Sports Notes and Reading. **6.0** till Close Down, See **Prague. 9.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—**12 Noon,** Selection from Rigoletto—Opera (Verdi), on Gramophone Records. **1.0 p.m.,** Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, La vie joyeuse (Hirschman); Selection from Nina Rosa (Romberg); Two Pieces for Pianoforte (Donliez); Images enfantines (Strens); Melody for 'Cello (Massenet); Mosaic (Zimmer); Loin du bal (Gillet). **2.0,** Programme for Schools. **5.0,** Concert of Chabrier Music by the Symphony Orchestra, conducted by J. Kumps: Overture, Gwendoline; Habanera; Suite pittoresque; Fête polonaise from Le roi malgré lui; España. **6.0,** Talk: What the League of Nations has achieved so far. **6.15,** Gramophone Concert: Allegretto vivace from the Trio in F (Saint-Saëns); Two Airs from Romeo and Juliet (Gounod); Les chérubins (Couperin-Salmon); Serenade (Volkmann); The Flight of the Bumble Bee (Rimsky-Korsakov); Easter Overture (Rimsky-Korsakov). **7.15,** Talk: Optimism in Spite of Troublous Times, by the Director of the Conê Institute. **7.30,** Literary Review. **8.0,** Bizet Concert by the Symphony Orchestra, conducted by Jean Kumps: Soloists: MM. Daems and Declercq (Songs); Overture, Patrie; Ballet Music from Carmen; Duet from Carmen; Minuet and Farandole from L'Arlésienne; Duet from The Pearl Fishers; Petite Suite. **8.45,** Talk: Women's Emancipation. **9.0,** Symphony Concert (contd.): Soloist: H. De Guent (Soprano); Overture, La princesse jaune (Saint-Saëns); Two Melodies (Van Oost); Songs: (a) Aria from Figaro (Mozart), (b) Se tu m'ami (Pergolesi), (c) Die Forelle (Schubert); Roman d'Arlequin (Massenet); Fantasietta (Dubois); Waltz, Wine, Woman and Song (Joh. Strauss). **10.0,** Journal Parlé. **10.10,** Request Gramophone Records. **10.25,** Popular Music on Gramophone Records. **11.0,** La Brabançonne.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Concert by the Station Orchestra, conducted by P. Leemans: Overture, Der Freischütz (Weber); Still wie die Nacht (Böhm); Divertissement rapsodie (Leemans); Melody (Rachmaninov); Spanish Dance for Violin (Falla-Kreisler); Selection from La Bohème (Puccini); Waltz, By all the Stars above you (Williams); Passacaille, Puerta de la carne (Lucchesi). **1.0 p.m.,** Le Journal Parlé. **1.10,** Popular Music on Gramophone Records. **2.0,** Educational Programme. **5.0,** Dance Music from the St. Sauveur Palais de Danse. **6.0,** Concerto for Violin and Orchestra (Tchaikovsky), on Gramophone Records. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans: Romantic Prelude (Rogister); Ballet Suite (Infante); Elan (Doulioz); Grotesque Dance (Schmitt); Legend No. 10 (Dvorák); Suite, En Bretagne (Rhené-Baton). **7.15,** Talk: Bernard Shaw's Play, Too true to be good. **7.30,** Wireless Notes. **8.0,** The Chicago Underworld—Radio Play (Schake), translated by Yvonne de Man. **9.0,** Concert by the Band of the First Regiment of Grenadiers, conducted by Lieut. R. De Cuninck: La Brabançonne (Van Campenhout); Military Symphony (Haydn); Third Scherzo (Gilson); Spanish Dances (Granados); Le chasseur maudit (Franck); Scheherazade (Rimsky-Korsakov). In the interval, Le Journal Parlé.

BUCHAREST

394 metres; 12 kW.—**4.0 p.m.,** Concert by the Station Orchestra: Cadets March (Sousa); Waltz, Wiener Bonbons (Strauss); Overture, Chai Romano (Ketelbey); Selection from Don Giovanni (Mozart); Selection from the Geisha (Jones). **5.0,** News and Time Signal. **5.10,** Talk. **5.25,** Concert (contd.): Dance Suite (Manufred); Slav Dances Nos. 8 and 9 (Dvorák); Sleigh Ride (Jessel). **6.0,** Talk: Romanian Epic Poetry. **6.40** Light Music on Gramophone Records. **7.0,** Symphony Concert by the Philharmonic Orchestra, conducted by Georgesco. **8.0** (in an interval), Recitations. **9.0,** News.

BUDAPEST

550 metres; 18.5 kW.—Also relayed on **840 metres** from **5.30 to 11.0 p.m.—4.30 p.m.,** Hungarian Folk Songs by Akos Morvay (Pianoforte). **5.0,** Reading. **5.30,** Talk with Gramophone Illustrations: Dance Music of Many Lands. **6.30,** Hungarian Songs by Denes Budai and Béla Reményi, sung by Elisabeth Toth and Paul Kalmár. **8.45,** News Bulletin, followed by Music by the Karl Bura Cigany Band. **9.0,** Weather. **9.5,** Orchestral Concert, conducted by T. Polgar: Overture (Lincke); Ballet Scene (Nagy); Die Werbung (Fördögh); Potpourri (Szirmai); Orientalische Szene (Kazacsay); Selection from The Arabian Nights (Joh. Strauss); Cossack Dance (Dargomijsky); Pas de fleurs (Delibes); Overture, Ein Herbstmanöver (Kálmán). **10.30,** Dance Music by the Jávor Band from the Bellevue Hotel.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Time and Chimes from the Town Hall. **11.5,** String Ensemble Concert, conducted by Harald Andersen, relayed from the Bellevue Strandhotel. **12.15 p.m.,** Talk: Music of the Eighteenth Century—Handel. **12.45 to 2.0,** Interval. **2.0,** Orchestral Concert conducted by Lanny Grondahl. Soloists: Helge Rungwald (Songs) and Henrik Boye (Harp). Titanen Marsch (Stork). Festival Overture (Tchaikovsky). Strophe (Bartholdy). Waltz, Soldaterminder (Norup). Cornet Solo: Paa Vagt (Dierig). Selection from Fidelio (Beethoven). March, Hilsen til Danmark (Bohlmann). Songs with Harp Accompaniment: (a) Wolfram's Song from Tannhäuser (Wagner), (b) Au cimetière (Saint-Saëns), (c) Two Songs from Chinese Songs (Tofft), (d) Vaagn af din Slummer (Heise). Riberhus March (Frohlich). Prelude to Act Four of Tovelille (Hamerik). Polka, Biondini (Lumbye). Invitation to the Dance (Weber). Fantasia on Danish Melodies (arr. Lauzky). March, Stars and Stripes (Sousa). **4.0,** Programme for Children. **4.40,** Exchange and Fish Market Prices. **4.50,** Talk. **5.20,** German Lesson. **5.50,** Weather Forecast. **6.0,** News **6.15,** Time Signal. **6.30,** Review of Politics for February. **7.0,** Chimes from the Town Hall. **7.5,** Programme by Per Kuntzon. **7.10,** String Quartet in C Minor, Op. 59, No. 2 (Beethoven) **7.50,** Die Geschwister—Comedy in One Act (Goethe). **8.30,** Concert of Russian Music. **9.5,** News. **9.20,** Saxophone Recital by Henry Casse. Trees (Rasbach). Ay-Ay-Ay (Perez-Freires). Gramophone Records. Indian Love Call (Friml). Here lies love (Rainger). **9.50,** Dance Music relayed from the Ritz Restaurant. In the interval at **11.0,** Time and Chimes from the Town Hall. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**12 Noon,** Light Music on Gramophone Records. **12.30 p.m.,** News Bulletin. **12.45,** Variety Concert. **6.0 to 7.0,** Programme in English by the I.B.C., C. Danvers Walker, R. Chene and B. McNabb announcing. **6.0,** Military Band Concert for Torquay Listeners: King Cotton March (Sousa); Medley of British Songs; Jungle Drums (Ketelbey); Paree (Padilla); The Battle of Waterloo (Eckersburg); Valencia (Padilla); National Emblem March (Bagley); Le Rêve passe (Krier). **6.30,** Concert for Weymouth Listeners. Trio: Old Time Jigs

MARCH 17th **FRIDAY** *continued*

and Reels; Songs: (a) Call me Darling, (b) Home, (c) Only a Rose (Friml); Trio: Turkey in the Straw; Songs: (a) Marta, (b) Save the Last Dance for me, (c) Song of the Vagabonds. **7.0,** Local News and Popular Music on Gramophone Records. **7.30,** Radio Gazette. **8.0,** Agricultural Talk. **8.15,** Light Music on Gramophone Records. **8.30,** Programme relayed from **Le Havre.** **10.0** till Close Down, Programme in English by the **I.B.C.** **10.0,** Light Music: Under a Texas Moon; Blue is the Night; Love in a Mist; Hello Baby; Blue Pacific Moonlight; Crying for the Carolines; Mother's Smile; Swanee Shuffle; If I can't have you; Marianne; The Sunshine of Marseilles; When the Red Red Roses get the Blues for you; The Love Waltz; Dreamy Honolulu; An Old Italian Love Song; A Night of Happiness. **11.0,** Music by a Symphony Orchestra: Overture, Tancredi (Rossini); Two Dances from the Nell Gwynn Suite (German): (a) Country Dance, (b) Merrymaker's Dance; Prelude to Carmen (Liszt); Two Dances from the Henry VIIIth Suite (German): (a) Torch Dance, (b) Morris Dance; Two Pieces from the Peer Gynt Suite (Grieg): (a) The Hall of the Mountain King, (b) Morning. **11.30,** Song Recital: Brother of the Empire (Helmore); I am a Friar of Orders Grey (Reeve); My Sword and I (Byng); Rocked in the Cradle of the Deep (Knight); Orchestra: Roses from the South (Joh. Strauss); Le Rêve passe; I travel the Road (Thayer); Rolling down to Rio. **12.0 Midnight,** Variety Music: The Wedding o' Lauchie (McGraw); Hans put up the Bans; Corporal Hoskins; Xylophone Solo: Gold Fishes; The Pack Man; All in favour; Waltz, The Blue Danube (Joh. Strauss). **12.30 a.m. (Saturday),** Accordion Solos: Ragtime Medley (Cuvelier); Petit Jean (Cuvelier); Perdita (Cuvelier); Triumph of Eros (Cuvelier); La Tourterelle (Damare); Tango de Paques (Cuvelier); Restless Fingers (Cuvelier). **1.0,** Orchestral Concert: Gems of Robbie Burns (arr. Beaton); Lightsome Reel (Traditional); Irish Set Dance (Traditional); Paul Jones (Traditional); Irish Jigs (arr. Smith); Barn Dance (Henry); Foursome Reel (Traditional); The Gay Gordons (arr. Stephen). **1.30,** Songs: Pretty Kitty Kelly (Johns); Speak to me of love (Sievier); To-day, To-morrow, For ever; (Carter); Springtime reminds me of you (Carter); Dream Lover; Excuse me, Lady; My Love Parade (Schertzinger); I'm just a Vagabond Lover. **2.0,** Variety Music: You, just you; In a Shanty in Old Shanty Town; Don't say good-bye; We just couldn't say good-bye; She was only Somebody's Daughter; Silver Hair and Heart of Gold; Marching along Together; Song of the Bells; Where is this Lady?; Rock your cares away; Tell me tonight; A Bedtime Story; Yes Mr. Brown; Bravo Jim; Take a Spot of Happiness. **2.57,** B.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW; **CASSEL, 245.9 metres;** and **TRIER, 259.3 metres.—4.0 p.m.,** Orchestral Concert. Soloist: August Pfaff ('Cello); Overture, Der Wildschütz (Lortzing); 'Cello Solos: (a) Andante (Pfaff), (b) Cantabile (Cui); Ballet Music from Silvana (Weber); 'Cello Solos: (a) Preghiera (Dorn), (b) Scherzo (Goens); Ballet Music from Undine (Lortzing); Old Dance Music. **5.15,** Economic Notes. **5.25,** Talk: Territory in Eastern Europe taken from Germany by the Treaty of Versailles. **5.50,** Time, Programme Announcements, Weather and Economic Notes. **6.0,** See **Berlin (Königs Wusterhausen).** **6.30,** Words for Germans—Radio Sequence (Willi Koch and Wolfram Brockmeier). **7.5,** See **Stuttgart.** **9.0,** Time, News, Weather and Sports Notes. **9.25,** See **Stuttgart.** **9.40,** See **Langenberg.** **10.30** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.—6.0 p.m.** (from **Kiel**), Talk relayed from **Berlin (Königs Wusterhausen).** **6.25,** Weather Forecast. **6.30,** Review of Books about Hamburg. **6.45,** Talk: What People are talking about in America, relayed from **America.** **7.0,** White Horse Inn—Musical Play in Three Acts (Benatzky). **9.15,** Time, Weather, News, Sports and Police Notes. **9.35,** Concert relayed from the Stadtschänke. **10.20,** Ice Report. **10.25** (from **Bremen**), Concert relayed from the Astoria.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW.; and **DANZIG, 453.2 metres.—12.5 p.m.,** Light Music on Gramophone Records. In the interval at **12.20,** News. **1.30,** Programme with Gramophone Records, arranged by the Post Office. **2.0,** Agricultural Prices and Exchange Rates. **2.30,** Programme for Children. **3.0,** Talk: The New Spring Fashions. **3.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Three Oriental Miniatures (Fischer); Berceuse (Kursch); Psalm (Kursch); Waltz (Löhr); Selection from Le Tribut de Zamora (Gounod); Potpourri, Klänge aus Arkadien (Morena); Grenzmarkklänge-Marsch (Schmidt). **4.30,** Book Review. **4.50,** Talk for the Country Woman. **5.15,** Agricultural Prices. **5.20,** Ice Report. **5.30,** Instrumental Concert by Eugen Wilcken (Violin), Richard Wendt (Oboe), Richard Knauer (Clarinet), Hermann Nagel (Trumpet), and Erich Börschel (Pianoforte). **6.0,** See **Berlin (Königs Wusterhausen).** **6.25,** Talk: The Geisha. **6.45,** Talk by Kurt G. Sell: What People are talking about in America, relayed from **America.** **7.0,** Weather and News. **7.10,** Dialogue: How to listen to Orchestral Music, with Examples from Brückner's Fourth Symphony. **7.55** (approx.), Symphony No. 4 in E Flat (Bruckner) by the Königsberg Opera House Orchestra, conducted by Erich Seidler. **8.40,** Guitar Recital by Heinrich Albert: Prelude and Fugue (Bach); Minuet, Op. 11, No. 5 (Sors); Impromptu (Mertz); Valse lento (Mozzani); Springbrunnen (Albert); Mandolinata (Albert); Etude from Caprices, Op. 20 (Legnani); Arab Serenade (Tarrega). **9.10,** Weather, News, and Sports Notes.

HILVERSUM

Announced **HUIZEN; 296.1 metres;** 20 kW. (7 kW. up to **4.40 p.m.**).—Programme of the Christian Radio Society (N.C.R.V.). **11.40 a.m.,** Police Announcements. **11.55,** Trio Concert. Soloist, M. J. v. Ginkel (Clarinet). Overture, La flûta semplice (Mozart); Spring Song (Mendelssohn); Selection from Henry VIII (Saint-Saëns); Walter's Prize Song (Wagner); Selection from Parsifal (Wagner); Gramophone Records; Overture, Das Nachtlager in Granada (Krentzer); Nordseebilder (Joh. Strauss); Norwegian Bridal Procession (Grieg); Selection from Piccolino (Guirand); Entr'acte Gavotte (Gillet); Selection from Le Déluge (Saint-Saëns). **1.40 p.m.,** Interval. **2.10,** Religious Reading. **2.40,** Talk for Women. **3.10,** Concert. Mme. I. Mulder-Belser (Contralto), J. H. E. Wittpen (Flute), H. Scholl (Violin), B. Oberstein ('Cello), and G. Hengeveld (Pianoforte). Trio Sonata in E (Telemann); Dank sei dir Herr (Handel); Sonata in G Minor (Masciti); Cavatine and Air from Figaro (Mozart); Adagio from the Concerto for 'Cello (Haydn); Trio No. 2 (Haydn); Geistliches Wiegenlied (Brahms); Entr'acte in A, Op. 118, No. 6 (Brahms); Ballade in G Minor, Op. 118, No. 3 (Brahms); Odelette (Saint-Saëns); L'Absent (Fauré); Nocturne (C. Franck); Zigeunerweisen (de Sarasate). **4.40,** Botanical Talk. **5.10,** Talk for the Amateur Photographers. **5.40,** Horticultural Talk. **6.10,** Talk. **6.40,** Literary Programme. **7.10,** Police Announcements. **7.25,** Religious Information. **7.40,** Concert by the Amsterdam Orchestral Society, conducted by Frans van Diepenbeck: Marche des cloches (Maillart); Overture, The Caliph of Bagdad (Boieldieu); Selection from Les Saltimbanques (Ganne); Lotus Flowers (Ohlsen); Dance from Paraguay (Valverde); Selection from Robert le Diable (Meyerbeer-Coenen). **8.40,** Talk. **9.10,** Concert (contd.): Crusaders' March (Sousa); Overture, Semiramis (Rossini); Oriental March, The Caravan (Asch); Finale from Ariele (C. Bach); Hymn and Triumphal March from Aida (Verdi); Selection from Romeo and Juliet (Gounod). In the interval at **9.40,** News. **10.10,** Popular Music on Gramophone Records. **11.10** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM; 1,875 metres;** 8.5 kW.—**11.40 a.m. to 3.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.40 a.m.,** Time Signal. **11.41,** Concert by the Wireless Orchestra, conducted by Nico Treep: Overture, Les Saltimbanques (Ganne); In the Mystic Land of Egypt (Ketelbey); Suite Phrygienne (Brusselmans); Russian Dance (Moszkowsky); Humoresque (Dvorák); Gramophone Records, Schritte im Dreivierteltakt (Kockert); Waltz, Les fleurs (Waldteufel); Ein Abend in Toledo (Schmeling); Si vous l'aviez compris (Denza); Selection from Le postillon de Longjumeau (Adam); Gramophone Records: Ein Melodientraum (Urbach); March, The Liberty Bell (Sousa). **1.40 p.m.,** Talk. **2.10,** Kovacs Lajos and his Dance Band. **3.40 to 7.40,** Programme of the Workers' Radio Society (V.A.R.A.). **3.40,** Concert by the Small V.A.R.A. Orchestra, conducted by P. Duchant: Overture, Morning, Noon and Night (Suppé); Selection from The Arabian Nights (Joh. Strauss); Serenade (Braga); In the Seventh Heaven (Fetras); Lolita (Buzzi-Peccia); In the Harbour of Port Said (Armandola); Selection from A Kiss in Spring (Kálmán). **4.30,** Programme for Children. **5.10,** Concert by the De Flierefluiters, conducted by H. de Groot: Hallo Baby (Raffalli); Du wärst für mich die Frau gewesen (Weinberger); Knave of Diamonds (Steele); Oriental Love (Leopold); Brighter than the Sun (Winn); Wir tanzen Weltschlager (Borchert); Zebra Stripes (Perl); Donna Vatra (Köpping); Harlequin (Erwin); Der Spielmann (Wilczinsky); De Internationale (de Geyter). **5.50,** Popular Music on Gramophone Records. **5.55,** Organ Recital by J. Jong: Chopiniana (Fetras); Fairy on the Clock (Myers). **6.20,** Talk. **6.40,** Concert by the V.A.R.A. Orchestra, conducted by H. de Groot: Overture, Poet and Peasant (Suppé); Die Schönbrunner (Lanner); Selection from Louise (Charpentier); Slav Dances Nos. 1 and 2 (Dvorák); Lied (Fibich); Waltz (Strauss); Chromatic Gallop (Liszt). **7.40 to 10.40,** Programme of the Liberal Radio Protestant Society (V.P.R.O.). **7.40,** Talk. **8.10,** Concert. **8.40,** Talk. **9.10,** Concert (contd.). **9.40,** News. **9.55,** Talk on Max Reger. **10.25,** Gramophone Records. **10.40** till Close Down, Programme of the V.A.R.A. **10.40,** Concert by De Notenkrakers, conducted by D. Wins: Hunky Dory (Holzmann); Memories of the Ukraine (Ferraris); Hochzeitszug in Lilliput (Translateur); Granny's Photo-Album (Greer); Selection from The Czarevitch (Lehár); Gramophone Records: O, mein schönes Neapel (Stolz); Burlkai (Kubat); A Night's Dream (May); Elégie (Massenet); Waltz favourites (Ciere); L'Internationale (de Geyter). **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.0 p.m.,** Literary Talk. **6.15,** Announcements and Gramophone Records. **6.25,** Sports Notes. **6.30 to 10.0,** See **Warsaw.** **10.0,** Answers to Correspondents in French.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres; 40 kW.; and **HELSINKI, 368.1 metres.—6.40 p.m.,** Humorous Programme. **7.0,** Dance Music, relayed from **Helsinki.** **7.45,** News in Finnish. **8.0,** News in Swedish.

LANGENBERG

473 metres; 60 kW.—**12 noon,** Concert conducted by Eysoldt. Soloists: Erich Rauch (Baritone) and Egbert Grape (Pianoforte). Overture, Peter Schmoll (Weber); Waltz, Samt und Seide from Der Fremdenführer (Ziehrer); Songs (Loewe): (a) Der Nöck, (b) Friderieus Rex; Ein Plauder-Stündchen (Wismar); Geburtstagsständchen (Lincke); Selection from Wild Violets (Stolz); Frühlingslied (Schürmann); Behüt' dich Gott (Nessler); Variations on a German Folk Song, 's kommt ein Vogel geflogen (Ochs); Song (Hill); March Potpourri, Jung Deutschland (Weninger). In the interval at **1.0 p.m.,** News. **1.30,** Sponsored Programme with Gramophone Records. **2.30,** Economic Notes and Time. **2.50,** Programme for Children. **3.20,** Jack and John—A Fairy Play for Children (Josef Otto), with Music by Hans Ebert. **4.0,** Concert, conducted by Wolf: Overture, Beherrscher der Geister (Weber); Bacarolle (Tchaikovsky); Troika (Tchaikovsky); Liebeswalzer (Moszkovsky); Selection from Mignon (Thomas); Ballet Suite, La Source (Delibes); Viennese Song Potpourri, Servus Wien (Dostal); Castaldo-Marsch (Novacek). **5.20,** English Conversation. **5.45,** Weather, Time, Economic Notes and Sports Results. **6.0,** See **Berlin (Königs Wusterhausen).** **6.30,** Talk: The Modern Author. **6.55,** News. **7.0,** Song Recital on Gramophone Records: Adele Kern (Soprano) and Julius Patzak (Tenor). Soprano Solo from Figaro (Mozart); Tenor Solo from The Magic Flute (Mozart); Soprano Solo from Il Seraglio (Mozart); Tenor Solo from Così fan tutte (Mozart); Soprano Solo: Ach, wär' ich schon mit ihm vereint from Fidelio (Beethoven); Tenor Solo: Walters Prize Song from The Mastersingers (Wagner); Soprano Solo from A Masked Ball (Verdi); Tenor Solo from A Masked Ball (Verdi); Soprano Solo from La Bohème (Puccini); Tenor Solo from La Bohème (Puccini); Soprano Solo: The Nightingale (Alabiev); Tenor Solo (Ständchen (R. Strauss); Soprano Solo: Waltz, Frühlingsstimmen (Joh. Strauss); Tenor Solo: Canzonetta from Gasparone (Millöcker). **8.5,** See **Leipzig.** **9.5,** News and Sports Notes. **9.20,** Talk by Kurt G. Sell: What People are talking about in America, relayed from **America.** **9.40,** Serenade and Dance Music, conducted by Eysoldt. **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romands.**

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN, 319 metres.—11.5 a.m.,** Concert by the Argré Orchestra, conducted by Gustav Curth: March, Schätzenjubel (Curth); Overture, Die schöne Galathée (Suppé); Entr'acte L'Extase (Thomé); Moselbe March (Sitt); Kaiser-Friedrich-Marsch (Friedemann); Selection from Orpheus in the Underworld (Offenbach); Paraphrase on the Song Still ruht der See (Schreiner); Poseidon March (Gessel); Unter der Friedensflagge (Novotesky); Potpourri, Ein musikalisches Wanderl-Panorama (Lincke); Waltz from Die Försterchustel (Jarno); March, Unter den Linden (Kollo); Waltz from Das Puppenmädel (Fall); Intermezzo, In the Shadows (Finck); Potpourri, With Fire and Sword (Fetras). In an interval at **12 Noon,** News, Weather, Snow Report, and Time. After the Concert, Exchange. **1.0 p.m.,** Art Review. **1.30 to 1.50,** Reading. **2.15,** Talk for Housewives. **2.35,** Exchange and Market Prices. **3.0,** Talk: How to make Nesting-boxes for Birds. **3.30,** Concert by the Dresden Philharmonic Orchestra, conducted by Joseph Gustav Mraczek: Overture, The Magic Flute (Mozart); Six German Dances (Haydn); Dance Suite for Chamber Orchestra, Aus galanter Zeit (Klaas); Scherzo (Ehrenberg); Selection from the Ballet, Lazy John (Nedbal); Waltz, Strandwellen (Lilling); Gavotte (Schutt). **4.30,** Weather and Time. **4.50,** Economic Notes. **5.0,** Book Review. **5.25,** English Lesson. **5.50,** Talk: Christoph Friedrich Nicolai (on the 200th Anniversary of his Birth). **6.0,** See **Berlin (Königs Wusterhausen).** **6.25,** Gramophone Concert: Overture, Fra Diavolo (Auber); Overture, A Midsummer Night's Dream (Mendelssohn); Kubelik Serenade (Drdla); Selection from The Land of Smiles (Lehár). **6.45,** Talk: What People are talking about in America, relayed from **America.** **7.0,** Talk on Economic Questions. **7.10,** Siegfried Kuhn Memorial Concert by the Kuhn Women's Choir, a Double Quartet and a Male Voice Choir; Soloists: Rudolf Watzke (Baritone) and Ida Kuhn (Pianoforte): Mixed Choir: Morgengruss; Songs for Baritone: (a) Ich wills o gerne singen, (b) Schlummerlied, (c) Seelen, (d) Der verzweifelte Liebhaber; Variations on an Old Minnelied, for Pianoforte; Three Songs: (a) Der Abend, (b) Durch die Nacht, (c) Reiterlied; Mixed Choir: Die Stadt am Meer. **8.5,** Kampe, the Waiter, goes to Law—a Legal Problem Piece for Workers (Sekundus). **9.5,** News Bulletin. **9.20** (approx.), Concert by the Leipzig Symphony Orchestra, conducted by Karl Schuricht: Music for Orchestra (Thiele); Symphony No. 3 (Hans Fleischer). **10.20** (approx.), Close Down.

LINZ.—See **Vienna.**

LWOW

381 metres; 16 kW.—**6.0 p.m.,** Talk: In the Film Studio. **6.15,** Miscellaneous Items. **6.30,** See **Warsaw.** **10.0** (approx.), Close Down.

MADRID

ARANJUEZ (EAQ), 30.43 metres; 20 kW.—**10.30 p.m.,** Popular Music. **10.45,** Radio Chronicle. **11.0,** Popular Music (contd.). **11.35,** Answers to Correspondence. **11.40,** Spanish-American Talk. **11.45,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO; Call EAJ7; 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, Programme of Musical Novelties, Medical Talk, and Variety Items by Ramon Gomez de la Serna. **8.15,** News Bulletin and Political Review. **8.30 to 9.30,** Interval. **8.30,** Chimes, Time Signal, and Political Review. **9.45** (approx.), Humorous Talk, followed by Concert by the Station Symphony Orchestra, conducted by Carlos Bacarisse: Selection from Iphigenia in Aulis (Gluck-Wagner); Concerto for Harp and Flute, with Orchestral Accompaniment (Mozart); Symphony No. 7 in A (Beethoven); Prelude à l'après-midi d'un faune (Debussy); Night on the Bare Mountain (Mussorgsky). **11.45,** News Bulletin and Programme Announcements for Listeners Abroad. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**6.0** till Close Down, See **Prague.** **9.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**4.30 p.m.,** Literary Programme. **5.30,** Symphony Concert, relayed from the Radio Theatre, Chopiniana (Rogal-Lewitzky). **8.0,** Talk in English: The Paris Commune.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres;** and **Nürnberg, 239 metres.—4.0 p.m.,** Concert, conducted by Erich Kloss. **5.10,** A Dialogue: Industrial Augsburg. **5.30,** Talk: Karl Marx as a Political Economist. **5.50,** Time, Weather, Market Prices, and Snow Report. **6.0,** See **Berlin (Königs Wusterhausen).** **6.25,** Choral Concert, conducted by Karl Kühn: Abendlied (Schumann); Wie schön blüht uns der Maie (Folk Song, arr. v. Othegraven);

Gagliarde (Hasler); Das Scheiden (Goslar); Vogel, flieg weiter (arr. v. Othegraven); Es wollt ein Jägerlein jagen (arr. Thiessen); So grün als ist die Heiden (arr. Thiessen); Der Krähwinkler Landsturm (arr. Haus Gal). **6.45** (from **Augsburg**), The Augsburg Opera Season, 1932-33—Concert by the Augsburg Municipal Theatre Orchestra and Soloist, relayed from St. Anne's College. **8.5** (from **Nürnberg**), In Franconia there stands an Old Castle—a Phantasmagoria (Alfred Graf), by the Nürnberg Madrigal Choir, a Guitar Quartet and Soloists. **9.20**, Time, Weather, News, Sports Notes, and Snow Report. **9.50**, Gramophone Report: What People are talking about in America, relayed from **America**.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres**; and **Rjukan, 447.1 metres.**—**3.30 p.m.**, Orchestral Concert, relayed from the Grand Hotel: Overture, Euryanthe (Weber); Waltz, O schöner Mai (Joh. Strauss); Selection from Tosca (Puccini); Melody (Cassard); Hymn to the Sun (Rimsky-Korsakov); Ballet Music from Sylvia (Delibes). **4.30**, Talk on Schools. **5.30**, French Lesson. **6,0**, Announcements, Weather and News. **6.30**, English Lesson. **7.0**, Time Signal. **7.1**, Scene for Orchestra, Choir and Soloists (Eyvind Groven), after a Novel by Ingeborg Refling Hagen, relayed from the Logen Hall. Conductor: The Composer. **8.30**, Agricultural Report. **8.40**, Weather and News. **9.0**, Topical Talk. **9.15**, Reading.

OSTERSUND.—See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—**7.0 p.m.**, Dopolavoro Notes, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society, and Giornale Radio. **7.20**, Variety Music. In an interval at **7.30**, Time and Announcements. **7.45**, Manon—Opera in Five Acts (Massenet). In the intervals, Talk and Announcements. After the Opera, News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.**, Le Journal Parlé. **7.20**, Weather Report. **7.30**, Concert by the Symphony Orchestra, conducted by Edouard Flament; Soloist, R. Bas (Violin): First Movement from the Concerto in A for Violin and Orchestra (Mozart); Pupazzi (Schmitt); Rolla (Flament); Nocturne and Musette (Sibelius). **8.15**, Musical and Literary Programme for Young People. **9.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**6.45 p.m.**, Journal Parlé. **7.0**, Sponsored Talk. **8.0**, Talk on Music. **8.15**, Interval. **8.30**, Concert of Old Dance Music by the Station Symphony Orchestra: Minuet and Sicilienne (Boccherini); German Dances (Beethoven); Gavotte (Lully); Gavotte (Martini); Rigaudon from Dardanus (Rameau); Ballet Music from Hippolyte et Aricie (Rameau); Le tombeau de Couperin (Ravel); English Suites (arr. Raband); Ballet Music from Armide (Gluck); Chanson à danser (Bruneau); Concerts royaux (Couperin); Dance Suite (Godard). **10.30**, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—**6.45 a.m.**, Physical Culture. **7.30**, Weather and Physical Culture (contd.). **7.45**, Gramophone Records. **8.0**, Press Review and Weather. **12 Noon**, Jewish Talk. **12.30 p.m.**, Concert by the Krettly Orchestra: Sonata No. 7 for Two Violins and Bass (Cléramhault); Allegro vivace and Andante con moto from the Italian Symphony (Mendelssohn); Turkish March (Mozart). **1.0 p.m.**, Exchange, News, and Weather. **1.5**, Chopin Pianoforte Recital by Niedzielski: Prelude in D Flat; Scherzo in C Sharp Minor; Nocturne in C Sharp Minor; Four Etudes. **1.30**, Exchange. **1.35**, Orchestral Concert (contd.): Andante and Rondo from the Pianoforte Quartet (Beethoven); Abendlied (Schumann); Waltz (Chopin); Valse romantique (de Sévérac). **2.0**, Exchange. **3.45**, Exchange and Market Prices. **4.30**, Elementary English Lesson. **6.10**, Agricultural Talk. **6.30**, Review of New Books. **6.50**, Review. **7.0**, Talk: Von Bülow's Memoirs. **7.20**, Concert by the Krettly Orchestra: Lark's Serenade (Dicker); Soir d'Hiver (Schwandt); Serenade (Stalin); Sur l'eau (Steck); Catalana (Razigade); Ma mie Rosette (Lacôme); Extase (Ganne); Minuet (Volpatti). **7.45**, Commercial Prices and News. **8.0**, Literary Talk. **8.30**, News and Weather. **8.40**, Gastronomic Review. **8.45**, Variety Music on Gramophone Records. **9.0**, Tire-au-flanc—Vaudeville in Three Acts (Sylvane and Mouczy-Eon) relayed from the Dejazet Theatre.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **WSXK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.**, Talk by Dr. Emlyn Jones. **9.10**, Business News. **9.15**, S.A.I. Musicale (Carnegie Tech. Chapter). **9.30**, Weather Report. **9.32**, Market Reports. **9.45**, Johnny Muskrat. **9.50**, David Lawrence Dispatch. **9.58**, Programme Announcements. **10.0**, Musikingum College Music Clubs. **10.15**, Programme to be announced. **10.30 to 11.15, New York** Relay. **10.30**, The Singing Lady. **10.45**, Little Orphan Annie. **11.0**, Our Daily Food, by George Rector and Judge Gordon. **11.15**, Time Signal. **11.16**, Weather Report. **11.17**, Teaberry Sport Review. **11.22**, Press News Reeler. **11.27**, Strange Facts. **11.29**, Temperature Report. **11.30**, KDKA Orchestra. **11.45 to 3.30 a.m. (Saturday), New York** Relay. **11.45**, To-day's News, by Lowell Thomas. **12.0 Midnight**, Pepsodent Amos 'n' Andy. **12.15 a.m.**, Hilda Burke (Soprano). **12.30**, Five Star Theatre—Charlie Chan. **1.0**, Nestle's Programme. **1.30**, Time Signal and Adventures in Health. **1.45**, Howard Thurston the Magician. **2.0**. The First Nighter. **2.30**, Armour Programme. **3.0**, Alice Joy with Rollickers. **3.15**, Vic and Sade. **3.30**, Bridge School of the Air by E. Hall Downes. **3.45**, Bradley Kincaid. **4.0**, Time Signal. **4.1**, Teaberry Sport Review. **4.11**, Temperature Report. **4.12**, Weather Report. **4.13**, KDKA Artist Bulletin. **4.15**, Press Last Minute News Flashes. **4.20**, Smith Ballew and his Orchestra. **4.30**, Henry Halstead and his Californians. **4.58**, KDKA Artist Bulletin. **5.0**, Cotton Club Orchestra, from **New York.** **5.30**, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.**, See **Brno.** **3.55**, Talk: How Students live. **4.5**, Concert by the Ondricek Quartet: Duet for Violin and 'Cello, Op. 14 (Vomacka); Trio in G, Op. 9, No. 1, for Violin, Viola and 'Cello (Beethoven). **5.5**, Market Prices. **5.15**, Talk for Workers. **5.25**, News in German. **5.30**, German Transmission: Talk on Diphtheria. **6.0**, Chimes. **6.1**, News Bulletin. **6.10**, Talk. **6.30**, Macbeth—Tragedy in Five Acts (Shakespeare). Translation by J. V. Sladek. Incidental Music by Otakar Jeremias. In the interval at **8.0**, Time Signal. **9.0**, Time Signal. **9.1**, News Bulletin. **9.15** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW; **LAUSANNE, 680 metres**; and **GENEVA, 760 metres.**—**5.30** (from **Geneva**), Talk: The Industrial Labour Bureau and Unemployment Insurance. **6.0** (from **Lausanne**), Weather Forecast, News Bulletin and Announcements. **6.30**, Lesson for Accountants. **7.0** (from **Lausanne**), Variety Concert. **9.0**, News Bulletin and Weather Forecast. **9.10** (from **Geneva**), Talk: The Work of the League of Nations. **9.30** (approx.), Close Down.

RIGA

525 metres; 15 kW. **5.30 p.m.**, Latvian Lesson. **5.58**, Weather Report. **6.0**, Symphony Concert, conducted by J. Medins. Symphony in D (Medins); Concerto in E for Violin (Bach); Fuge in A Minor (Bach); La Nonne (Vischnegradsky). In the interval at **7.0**, News, and at **8.0**, Weather and News. **8.30**, Dance Music. **9.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO; 441 metres; 50 kW. Relayed by **Naples, 319 metres**; and **2RO, 25.4 metres.**—**6.45 a.m.**, Gymnastics. **7.15 to 7.30**, Giornale Radio and Announcements. **11.30**, Weather and Light Music on Gramophone Records. **12 Noon**, Time and Announcements. **12.2 to 1.15 p.m.**, Concert from **Turin.** In the interval, from **12.30 to 12.45**, Giornale Radio and Exchange. **3.0**, Concert by the Poltronieri Quartet, relayed from the Royal Academy of Santa Cecilia. **6.0 (Naples)**, Shipping and Sports Notes. **6.10**, Agricultural and Dopolavoro Notes. **6.20**, Giornale Radio, and Light Music on Gramophone Records. **7.0**, Time and Announcements. **7.5**, Report of the International Institute of Agriculture (in Italian, French, English, German and Spanish). **7.30**, Talk on Sport, Sports Notes, and Tourist Report. **7.45**, Variety Concert: Overture, The Italian Girl in Algiers (Rossini); In the Steppes of Central Asia (Borodin); Autumn, from The Seasons (Glazunov); Selection from La Cabrera (Dupont); 'Cello Solos: (a) Intermezzo (Lalo), (b) Waltz (Hummel), (c) Song and Arab Dance (Malè), (d) Concert Mazurka (Popper). **8.45**, Il cavallino rosso—Musical Comedy (Bonavolonta). News after the Programme.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**7.30 p.m. to 12 Midnight, New York** Relay. **7.30**, Muted Strings. **7.45**, Three Shades of Blue-Male Trio. **8.0**, Sonata Recital. **8.15**, Famous Loves. **12 Midnight**, New Kenmore Orchestra. **12.15 a.m. (Saturday)**, Stock Report. **12.30 to 1.30, New York** Relay. **12.30**, Twenty Fingers of Harmony. **12.45**, The Goldbergs. **1.0**, Cities Service Concert. **1.30, WGY** Farm Forum. **2.0**, K-7, Secret Service Spy Stories from **New York.** **2.30**, Pond's Programme, followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE, 244.1 metres**; and **BERNE, 245.9 metres.**—**11.28 a.m.**, Time Signal from Neuchâtel Observatory. **11.30**, Weather and News. **11.40** (from **Zürich**), Concert by the Small Radio Orchestra. **12.35 to 12.45 p.m.**, Weather and Exchange. **2.30** (from **Zürich**), Concert of Light Music by the Radio Orchestra. **3.30** (from **Zürich**), Programme for Children. **4.0** (from **Zürich**), Gramophone Concert of Variety Music. **4.30 to 4.35**, Weather Report. **5.30** (from **Berne**), Readings. **6.0**, Time Signal, Weather Forecast, Market Prices, Tourist Report and Sports Notes. **6.20** (from **Berne**), Book Review. **6.50** (from **Berne**), Introductory Talk on the following Transmission. **7.0** (from **Berne**), Manon Lescaut—Opera in Four Acts (Puccini), relayed from the Berne Theatre. **8.45** (approx.), Weather and News. **10.0** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres**; and **Sundsvall, 542 metres.**—**4.5 p.m.** (from **Sundsvall**), Folk Music. **4.30**, Reading. **5.0**, Variety Music on Gramophone Records. **6.0**, The Practical Corner. **6.30**, Talk, relayed from **Malmö, 231 metres.** **7.0** (from **Goteborg**), Symphony Concert. Symphony in D (Haydn); Lieder eines fahrenden Gesellen (Mahler). **7.50**, Talk on Foreign Politics. **8.10**, Variety Programme. **9.0**, Bettine—Comedy (de Musset). **10.0** (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.**, Gramophone Concert of Variety Music. **12.45 p.m.**, News. **1.0**, Time and Exchange. **1.5**, Popular Music on Gramophone Records. **2.0 to 4.45**, Interval. **4.45**, Talk in French on Molière. **5.0**, Orchestral Concert conducted by Roskam: Overture, Le naufrage de la Méduse (Flotow); Waltz, Feuilles du soir (Offenbach); Chinese Intermezzo, Cherry Blossom Festival (Dicker); Selection from Madame Butterfly (Puccini-Berghs); La voix des cloches (Luigini); Ballet Music from Cinq Mars (Gounod); Fantasia, Echos Russes (Leopold). **6.0**, Trio Concert relayed from **Lille, 265.4 metres.** **7.0**, Topical Talk in German. **7.15**, Talk in French on the Forty-Hour Week. **7.30**, Time and News. **7.45**, Concert of Jazz Music, conducted by Roskam. **8.45**, Lottery Results. **9.0**, Concert from the Conservatoire, Toulouse. Conductor: Aimé Kune. Soloists: Suzanne Balagnerie (Songs) and Victorina Bucci (Pianoforte). **11.0** (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.**—**12.30 p.m.**, Concert from **Langenberg.** **1.0**, Concert arranged by the Post Office. **1.30**, Advanced English Lesson. **3.35**, Talk: Daily Housework as a Beautifier. **4.0**, See **Frankfurt.** **5.15**, Time, Weather, and Agricultural Notes. **5.25**, Medical Talk on the Value of Proper Nourishment. **5.50**, Talk: Proposals for Sunday Rambles. **6.0**, See **Berlin (Königs Wusterhausen).** **6.25**, Time and News. **6.30**, Talk: Great Orators V—Oliver Cromwell. **7.5**, Wagner Concert by the Philharmonic Orchestra, relayed from the Liederhalle, Conductor, Leo Blech: Prelude to Parsifal; Good Friday Magic, from Parsifal; Prelude to Lohengrin; Overture, Tannhäuser; Prelude to The Mastersingers; Prelude to Tristan und Isolde; Overture, Rienzi. **9.0**, Time, News, Weather, Snow Report, Programme Announcements, and Sports Notes. **9.25**, Talk by Kurt G. Sell: What People are talking about in America, relayed from **America.** **9.40**, Concert from **Langenberg.** **10.0**, Der weisse Schlaf—An Elegy from Poems by Max Dauthendey for Speaking Voice and Organ (Wilhelm Locks), relayed from the Ufa Palast; Emil Iless (Recitations) and Wilhelm Locks (Organ). **10.40** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—**6.0 p.m.**, News Bulletin. **6.15**, Music by an Argentine Orchestra. **6.30**, Opera Music: Selection from (a) La Dame Blanche (Boieldieu), (b) Blue Beard (Offenbach). **7.0**, Tourist Talk and Sound Film Music. **7.15**, Racing Results, Market Prices, and News Bulletin. **7.25**, Local News Bulletin. **7.30**, Accordion Music. **7.45**, Orchestral Music: Selection from (a) The Chocolate Soldier (Oscar Straus), (b) The Merry Widow (Lehár). **8.0**, Airs from Opera: (a) Samson and Delilah (Saint-Saëns), (b) The Valkyries (Wagner), (c) Il Trovatore (Verdi). **8.15**, Violin Solos: (a) Danse frivole (Dulcroze), (b) La plus que lente (Debussy), (c) Arlequin (Lalo). **8.30**, Operetta Music. **8.45**, 'Cello Concerto (Dvorak). **9.15**, Chansonettes. **9.30**, Concert of Light Music by a Viennese Orchestra. **10.0**, Opera Music: Aria from Lakmé (Delibes); Drinking Song from Cavalleria rusticana (Mascagni). **10.15**, North African News. **10.30**, Concert for Listeners in Morocco: Sphärenklänge (Strauss); C'est une valse qui chante (Rosler); Sous les toits de Paris (Moretti); In a clock-Store (Orth); Cavatina from Romeo and Juliet (Gounod); March (Farrigoul). **11.0**, Symphony Concert: Old Spanish Song (Aubert); The Moldau (Smetana); La Poupée d'Arlequin (Darcy); Air from Sicilian Vespers (Verdi); Bourrée fantasque (Chabrier). **11.30 to 12 Midnight**, Programme in English by the I.B.C., H. K. Hitchcock announcing. **11.30**, I.B.C. Half-Hour: Serenade (Heykens); Please come back to me (Bray); Sitting at the Window (Hoskins); Stephanie Gavotte (Czibulka); The Skaters' Waltz (Waldteufel); One more Day (Pepper); Let's play at pretending (Pepper); Selection from A Waltz Dream (O. Straus). **11.57**, I.B.C. Good-night Melody. **12 Midnight**, Weather and Announcements. **12.5 a.m. (Saturday)**, Dance Music. **12.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**3.0 p.m.**, See **Rome.** **5.35 to 6.0**, See **Turin.** **6.0**, Popular Music on Gramophone Records. **6.20 to 6.35**, See **Turin.** **6.35**, Light Music from the Café Dante. **7.0** (approx), till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres**; and **Florence, 500.8 metres.**—**3.0 p.m.**, See **Rome.** **5.35**, Giornale Radio; Agricultural and Dopolavoro Notes. **6.0**, Gramophone Records of Popular Music. **6.20**, Giornale Radio. **6.30**, Time; Announcements; Report of the Royal Geographical Society; and Variety Music on Gramophone Records. **7.0**, Giornale Radio; Weather and Gramophone Records (contd.). **7.30** (in an interval), Talk on Sport. **8.0**, Symphony Concert, conducted by Fernando Previtali: Soloist: Arthur Rubinstein (Pianoforte); Talk in the interval. **10.0**, Giornale Radio.

VATICAN CITY

19.84 metres (Morning) and 50.26 metres (Evening); 10 kW.—**10.0 to 10.15 a.m.**, Religious Information in German. **7.0 to 7.15 p.m.**, Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres**; and **Salzburg, 218.5 metres.**—**4.0 p.m.**, Concert by the Josef Mayer Aichhorn Orchestra. **4.55**, Tourist Report. **5.5**, Talk on Handball. **5.20**, Sports Notes. **5.30**, Talk: The Iron Industry in the Stubai-Tal. **5.55**, Talk: The Warning of the World War. **6.20**, Time, Weather, and Programme Announcements. **6.30**, Popular Music by the Tantenhayn Quartet. **7.10**, Mary Magdalene—Tragedy in Three Acts (Friedrich Hebbel). **9.10**, News, Weather, and Programme Announcements. **9.25**, Traffic Report. **9.30**, Concert by the Silvester Schieder Orchestra: March, Frohe Zukunft (Payr); Overture, The Three Wishes (Ziehrer); Selection from Polenblut (Nedbal); Waltz, Ange d'amour (Waldteufel); Potpourri, Wiener Leben (Komzak).

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.**, Time Signal and Bugle Call from the Tower of St. Mary's Church, Cracow. **11.5**, Programme Announcements. **11.10**, Light Music on Gramophone Records. **12.20 p.m.**, Weather Forecast. **12.20 to 2.10**, Interval. **2.10**, Announcements. **2.15**, Economic Notes. **2.25**, Aviation Notes and Anti-Gas Drill. **2.30**, Naval and Colonial Report. **2.35**, Review of Periodicals. **2.50**, Popular Music on Gramophone Records. **3.20**, Talk on History: The Development of the Parliamentary System in England, relayed from **Wilno (563 metres).** **3.40**, Talk: Poland in the Seventeenth and Eighteenth Centuries, relayed from **Poznan (335 metres).** **4.0**, Wind Instrument Concert: Suite in C Minor, Op. 80 (Rund); Rhapsody, Espana (Chabrier); Potpourri of Polish Melodies (Sidorowicz); Mountaineers' Dances from Halka (Moniuszko). In the Interval, Announcements. **4.55**, Programme Announcements. **5.0**, Talk on Polish Literature: The Novels of the Nineteenth Century. **5.20**, Topical News. **5.25**, Light Music. **5.50**, Ski-ing Report from **Cracow (312.8 metres).** **6.0**, Miscellaneous Items. **6.20**, Agricultural Press Review, relayed from **Wilno.** **6.30**, Talk. **6.45**, Radio Journal. **7.0**, Talk on Music. **7.15**, Concert by the Warsaw Philharmonic Orchestra, conducted by I. Neumark; Soloist, I. Weissenberg (Violin): Symphony in G (Haydn); Violin Concerto in E (Bach); Symphonic Poem, Don Juan (R. Stranss); Violin Concerto (Glazunov). In the interval, **Talk.** on Poetry, with Illustrations. **9.40**, Sports Notes. **9.45**, Radio Journal. **9.55**, Aviation Weather Report and Police Notes.

ZURICH.—See **Schweizerischer Landessender.**

MARCH 17th **FRIDAY** *continued*

SATURDAY

MARCH THE EIGHTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Scotland v. England. Running commentary on Rugby Match, from Edinburgh. Students' songs. Vaudeville programme.
LONDON REGIONAL	Two miniature operas: "Bastien and Bastienne," and "The Impresario," by Mozart.
MIDLAND REGIONAL	Symphony concert.
NORTH REGIONAL	Running commentary on Rugby League Match, Warrington v. Halifax. The Yorkshire Mummers.
WEST REGIONAL	A West Country programme.
SCOTTISH REGIONAL	Running commentary on International Rugby Match, Scotland v. England. "What's Intilt," feature programme.
BELFAST	Choral and Orchestral concert.

ABROAD

BRUSSELS (No. 1)	8 p.m. Lyrical drama: "Edénie," by Léon Dubois.
COPENHAGEN	7.30 p.m. A Radio Ball for the Older Generation.
PALERMO	7.45 p.m. Operetta: "Cin-ci-la," by Ranzato.
STRASBOURG	5 p.m. Pasdeloup symphony concert from the Theatre des Champs Elysées, Paris. 8.30 p.m. Military Band concert.
TOULOUSE	9 p.m. Extract from "La Mascotte," by Audran.
TURIN, MILAN, and TRIESTE	8.10 p.m. Operetta: "The Last Waltz," by Oscar Straus.
WARSAW	7 p.m. Polish folk music.

ALGIERS

363.3 metres; 13 kW.—**7.10 p.m.,** Shipping Notes. **7.15,** Agricultural Report and Weather Forecast. **7.20,** Opera Music: Airs from: (a) La Belle Hélène (Offenbach), (b) Les Noces de Jeannette (Massé), (c) Ciboulette (Hahn), (d) Mam'zelle Nitouche (Hervé). **7.55,** News. **8.0,** Time Signal. **8.2,** Request Gramophone Concert. **8.30,** Report of the Automobile Club. **8.40,** News. **8.45,** Sound Film Music. **9.30,** News. **9.35,** Two Melodies (Gretchaninov). **9.45,** Clarinet and Saxophone Solos. **9.55, News. 10.0** (approx.), Close Down.

ATHLONE

413 metres; 60 kW.; and **CORK, 224.4 metres.**—**1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.15,** Popular Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Talk. **7.45,** Gaelic Talk. **8.0,** The Station Orchestra; H. R. White in a Programme of his own Compositions. **8.30,** Soprano Solos by Mme. Lilian Swann. **8.45,** The Station Orchestra. **9.30,** Uilleann Pipe Solo by Sean Dempsey. **9.45,** Baritone Solos by W. J. Lemass. **10.0,** The Station Orchestra. **10.20,** Time Signal, News, and Weather Report. **10.50,** Relay of the National Ceilidhe from the Arcadia, **Cork. 11.30** (approx.), Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**6.0 p.m.,** Programme for Children. **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations and Catalan Grammar Lesson. **8.0,** Light Music on Gramophone Records, and News. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **9.5,** Concert by the Station Orchestra: Overture, Rienzi (Wagner); Montanesa (Frigola); Song from Ma Poupée chérie (de Severac); Bacchanale (Doret). **9.30,** A Musical Comedy, relayed from **Madrid (EAJ7). 11.0** (in an interval), News Bulletin.

BARI

269.8 metres; 20 kW.—**7.0 p.m.** Agricultural Notes, Tourist Talk, and Dopolavoro Notes. **7.20,** Giornale Radio and Weather. **7.30,** Time and Announcements. **7.35,** Concert of Operetta Music and Songs. In the interval, Art Notes. **9.30,** Popular Music on Gramophone Records. **9.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—**3.30 p.m.,** Song Recital: Arias from (a) Il Trovatore (Verdi), (b) La Bohème (Puccini) (c) Tosca (Puccini), (d) La Juive (Halévy), (e) Tannhäuser (Wagner). **4.0,** Popular Music on Gramophone Records. **5.55,** Time and Programme Announcements. **6.0,** Flute Recital: Sonata No. 7 (Handel); Andante, Op. 315 (Mozart); Selection from Lucrezia Borgia (Briccialdi). **6.40,** Introductory Talk to the following Transmission. **6.60,** Kostana-Operetta (Krstic). **9.0,** (approx.), News, followed by Relay of European Stations.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert of Light Music, relayed from **Berlin (Witzleben). 2.0,** Programme for Children. **2.45,** Rudolf Paulsen reads from his own Works. **3.0,** Talk by Dr. Scheffer: One Thousand Years Ago. **3.30,** See **Hamburg. 4.10,** Topical Review. **5.0,** Sonata for 'Cello and Pianoforte (Chopin). **5.30,** Talk: Problems of the Art of Singing. **5.55,** Weather and Announcements. **6.0,** Talk and Poems by Fritz Michel. **6.30,** A Poem. **6.35,** Quartet in A Minor, Op. 41, No. 1 (Schumann), by the Strub Quartet. **7.5,** See **Stuttgart. 9.5,** Weather, News and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**3.0 p.m.,** Concert by the Station Orchestra, conducted by Bruno Seidler-Winkler: Norwegian Rhapsody No. 1 (Svendsen); Holdinghans Suite (Glass); Three Swedish Dances (Graener); Spanish Caprice (Rimsky-Korsakov). **4.0,** See **Munich. 5.0,** Berlin—Readings by Hans Brennert.: **5.30,** Brahms Song Recital by Anny Helm (Soprano): Nicht mehr zu dir zu gehen; Wehe, so willst du mich wieder; Es träumte mir, ich sei dir teuer; Meerfahrt; Wenn du nur zuweilen lächelst; Heimweh; Dein blaues Auge; Ruhe, süss' Liebchen; Blindekuh. **5.55,** The Witzleben Station informs its Listeners. . . . **6.0,** Topical Talk. **6.15,** A Political Discussion. **6.35,** Böcklin Suite (Reger), relayed from the Academy of Music. The Academy Orchestra, conducted by Prof. Gustav Havemann. **6.55,** Announcements. **7.0,** The Merry Peasant—Operetta in Two Acts (Fall). **9.10,** Weather, News and Sports Notes. **9.25** (approx.), Sports Talk. **9.30** (approx.), Dance Music, relayed from the Eden Pavillon. **11.30** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—**7.40 p.m.,** Sports Notes. **7.45,** Talk: France and the World Crisis. **8.0,** News, Exchange, and Lottery Results. **8.5,** English Lesson. **8.20,** News and Weather. **8.30,** Gramophone Concert of Variety Music. **9.0,** Les deux hommes—Comedy (Capus).

BRATISLAVA

279 metres; 14 kW.—**3.10 p.m.,** Popular Concert by the Station Orchestra, conducted by J. Odcházel. **4.10,** See **Prague. 4.20,** Reading. **4.30,** Light Music on Gramophone Records. **5.15,** Choral Concert of Slovak Folk Songs. **5.45,** Talk for Housewives. **6.0,** See **Prague. 9.15,** See **Moravská-Ostrava. 10.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.**—**12.10 p.m.,** Gramophone Concert of Light Music. **12.45,** Time, Weather, News and Exchange. **1.5,** Popular Music on Gramophone Records. **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Film Review of the Week. **3.0,** Topical Programme. **3.30,** See **Hamburg. 4.30,** Talk: The History of a German Family in Russia. **4.55,** Talk: Bismarck and German Socialism. **5.25,** Concert of Old and New Dances on Gramophone Records: Ländler, Auf zum Tanz; Tango, La bella Tangolita (Abraham); Slow Foxtrot from Zehn Minuten Glück (Meisel); Valse bleue (Margis); Slow Foxtrot (Warren); Foxtrot from the Sound Film Ich bei Tag und du bei Nacht (Heymann); Johann Strauss Waltz Potpourri (Goldmann-Wehels). **6.30,** Weather Forecast. **6.35,** Programme to be announced. **7.0,** Variety Concert with Music by the Station Orchestra, conducted by Franz Marszalek. **9.0,** Time, Weather, News, Sports Notes and Programme Announcements. **9.30,** Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BRNO

342 metres; 35 kW.—**5.25 p.m.,** German Transmission: News and Relay from the German Municipal Library. **6.0,** See **Prague. 7.30,** Bagpipe Trio Concert. **8.0,** See **Prague. 9.15,** See **Moravská-Ostrava. 10.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—**12 Noon,** Gramophone Concert: Intermezzos from Acts Two and Three of The Jewels of the Madonna (Wolf-Ferrari); La soupe à Toto (Noël); French Polka, Feuer Fest (Joh. Strauss); Les deux amis (Chaillier); In a Fairy Realm (Ketelbey); French Polka, Sängerlust (Joh. Strauss); Intermezzo, Bells across the Meadows (Ketelbey); Pastourelles (Weckerlin); Selection from Sylvia (Delibes). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert, relayed from the Grand Hotel, **Antwerp. 5.0,** Concert by Mickey's Club Jazz Attraction. **6.0,** Talk: The Cost of Living in Belgium. **6.15,** Gramophone Records: Song at the Forge from Siegfried (Wagner); Romance in F (Beethoven); Song, The Field Marshal (Mussorgsky-Lipunov). **6.30,** Pianoforte Recital by M. Van Tomme: Impromptus (Absil); Sonatina (Ravel). **6.45,** Le billet de faveur—Sketch (Lauville). **7.0,** Extracts from the Concerto for 'Cello, Op. 33 (Saint-Saëns) on Gramophone Records. **7.15,** Talk: Political Parties in Germany and Austria. **7.30,** Review of International Events. **8.0,** Edénie—Musical Play (Léon Dubois), by the Symphony Orchestra, conducted by Jean Kumps. In the interval, Le Journal Parlé. **11.0,** Dance Music on Gramophone Records. **12 Midnight,** Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Concert, conducted by André Felleman, relayed from the Grand Hotel, Antwerp. **1.0 p.m.,** Le Journal Parlé. **1.10,** Variety Music on Gramophone Records. **5.0,** Concert by the Radio Orchestra, conducted by Franz André: Onestep, Pamplemousse (Closset); Potpourri, Bitte recht freundlich (Ralph); Czardas (Monti); Italian Caprice (Tchaikovsky); Donauwellen (Ivanovici); Four Indian Love Lyrics (Woodforde-Finden); Pasodoble (Sentis). **6.0,** Talk: The Works of Bengt Berg. **6.15,** Talk: Stravinsky's Ballet, The Fire Bird. **7.15,** Talk. **7.30,** Film Review. **8.0,** Concert by the Radio Orchestra, conducted by Franz André: Flemish Popular Songs (Schoemacher); Rondo (Poot); Norwegian Dances (Grieg); Two Popular Flemish Songs; Danceries (Souris); Rhythm (Coates). **8.45,** Siesta—Sketch (Bakhuis). **9.0,** Concert (contd.): Overture, Die Fledermaus (Joh. Strauss); Spanish Dances (Albeniz); Granados (Sarasate and Turina); Two Songs; Russian Potpourri of Songs and Balalaika Solos; Cigány Music. **10.0,** Le Journal Parlé. **10.10,** Gramophone Records: Chromatic March (Courtade); Italian Fantasia (Delmas); Lang, lang ist's her (Dietrich); Egyptian March (Joh. Strauss). **10.30,** Concert by Max Alexys and his Orchestra, relayed from the Ancienne Belgique. **12 Midnight** (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—**4.0 p.m.,** Light Music and Romanian Music by the Sibiceano Orchestra. **5.0,** News and Time Signal. **5.10,** Talk. **5.25,** Concert by the Sibiceano Orchestra (contd.). **6.0,** Talk: The Political Development of Romania. **6.40,** Gramophone Records of Light Music. **7.0,** Concert by the Station Orchestra: Berceuse sur l'eau (Bournonville); Tango (Leopold); Johann Strauss Potpourri (Weber); Spanish Serenade (De Micheli). **7.45,** Talk in Danish on Romania. **8.0,** Concert by the Station Orchestra, conducted by M. Jora: Slow Minuet (Enesco); Berceuse (Jora); Christmas Carol (Jora); Two Popular Dances (Rogowski). **8.20,** Romanian Song Recital by Mme. Olga Solomoneano. **8.35,** Romanian Music by a Cigány Band. **9.0,** News.

BUDAPEST

550 metres; 18.5 kW., also relayed on **840 metres** from **6.40 p.m.** (approx.). **4.0 p.m.,** Concert by a Wind Instrument Orchestra conducted by S. Borsay; Song (Borsai); Selection from Orpheus in the Underworld (Offenbach); Waltz, The Blue Danube (Joh. Strauss); Hungarian Fantasia (Borsay); Selection from La Traviata (Verdi); Selection from Lilac Time (Schubert-Berté); Selection from The Count of Luxembourg (Lehár) **5.10,** Answers to Correspondents. **5.40,** Pianoforte Recital by G. Zsigmondy; Sonata in C Sharp Minor (Beethoven); Ahend bei den Séklern (Bartok); Song, Rhapsody (Liszt). **6.10,** Review of Foreign Politics. **6.30,** Relay from the Royal Hungarian Opera House. News in the interval. After the Relay, Music by the Lajos Kiss Cigany Band from the Café Baross. **11.0** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Time and Chimes from the Town Hall. **11.5,** String Ensemble Concert, conducted by A. Rendix, relayed from the Wivex Restaurant. **1.0 to 1.30 p.m.,** Interval. **1.30,** Gramophone Concert: Maggie Teyte: Tu n'es pas beau, tu n'es pas riche, from La Périchole (Offenbach); Carl Neumann: Fröhlingstraum (Schubert); Emilio de Gogorza: El Relicario (Padilla); Henri Marteau: Hungarian Dance No. 6 (Brahms-Joachim); Sven-Olof Sandberg: Melody (Sylvain); Jenny Howard: Melody (Le Clercq); Stuart Ross and Joe Sargent: You can make my life a bed of roses (Brown-Henderson); The Three Ginx: While I dance with my Girl (Barker-John-Keys). **2.4,** Programme for Children. **2.30,** Concert by the Radio Orchestra, conducted by Emil Reesen: Overture, The Daughter of the Regiment (Donizetti); Valse triste (Sibelius); Suite No. 1 from Carmen (Bizet); Melody from the Lyric Suite (Grieg); Entr'acte and Dance of the Bacchantes, from Philémon et Baucis (Gounod); Reading; Overture, Zigeunerblut (Fall); Selection from the Serenade for Strings (Herbert); Mandoline (Debussy); Selection from Sylvia (Delibes); Gallop, Nordiske Fosthrodre (Lumbye). **4.40,** Exchange and Fish Market Prices. **4.50,** Talk. **5.20,** French Lesson for Beginners. **5.50,** Weather Forecast. **6.0,** News Bulletin. **6.15,** Time Signal. **6.30,** Talk. **7.0,** Chimes from the Town Hall. **7.5,** Reading (W. Thackeray). **7.30,** Radio Ball for the Older Generation. The Station Orchestra, conducted by Lanny Gröndahl. Soloists: Aase Wallenstrom (Songs), and Viktor Fischer (Pianoforte). Selection (Lumbye): (a) Mac Mahon March, (b) Waltz Krolls Ballklänge, (c) Polka, Hostblomsten, (d) Polka-Mazurka, (e) Sophie Vals, (f) Gallop; Songs: (a) Dumme Peter (Rantzau), (b) Folk Song, (c) Song (Nørtra); Eiffel March (Fahrbach); Polka (Fahrbach); Melody; Waltz (Ivanovici); Polka-Mazurka (Ivanovici); Waltz, Etincelles (Waldteufel); Mazurka, La Scandinave (Ganne); Symiles-tovle Galop (Fahrbach). **8.55,** Reading. **9.15,** News. **9.30,** Concert (contd.): King Cotton March (Sousa); Waltz (Harris); Ach du lieber Augustin (Fall); The Lancers; Tyrolese Waltz and Hopsa; Mazurka, Les Cigarieras; Den toppede Hone; Pianoforte Solos: (a) Polka-Mazurka, Josephine (Hornemann), (b) Waltz, Til Kullen (Lumbye), (c) Polka, Hilsen til gamle Venner (Nielsen); Swedish Masquerade; Polka (Lincke); Waltz, Les Sirènes (Waldteufel); Rheinland Polka; Quadrille, Jorden rundt (Georg Lumbye); Waltz, Vejledalen (Iversen); Sekstur; Gallop, Bouquet-Royal (Lumbye). **11.0,** Time and Chimes from the Town Hall.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**12 Noon,** Gramophone Concert of Variety Music. **12.30 p.m.,** News. **12.45,** Concert of Light Music. **6.30 to 7.0,** Programme in English by the I.B.C. Announcers: C. Danvers Walker, R. Chesne and B. McNabb. **6.0,** Pianoforte Recital for Folkestone Listeners; Rhythm Selection; A Bench in the Park; Selection from Words and Music; Parts I and II; Song, Speak to me of Love; Duet, Leave the Pretty Girls Alone; Just Hummin' Along; Some more Rhythm. **6.30,** Concert for Isle of Thanet Listeners: Orchestra: What's Next (arr. Finck); Songs: (a) Hoein' (Richard), (b) The Village Blacksmith (Weiss), (c) I'm a Roamer (Mendelssohn), (d) Leanin' (Sterndale-Bennet), (e) The Windmill (Nielson), (f) The Company Sergeant Major (Sanderson). **7.0,** News and Popular Music on Gramophone Records. **7.30,** Radio

Gazette. 8.0, Answers to Correspondents. 9.0, Variety Concert. 10.0, Café Concert. 11.0, till Close Down. Programme in English by the I.B.C. 11.0, International Broadcasting Club Concert: Medley of British Songs; Old Mother Hubbard; Mimi; Wanderer; How do you do, Mr. Brown?; Let's all be Fairies; Little Yvonne; On the Quarter Deck (Alford). 12 Midnight, Orchestral Concert: Colonel Bogey (Alford); The Rose Beetle goes a-wooing (Amandola); Wee Macgregor Patrol (Amers); Siciliana Serenata (Schmalstich); The Whistler and his Dog (Pryor); Babes in Toyland (Herbert); The Warbler's Serenade (Perry); Reconciliation (Drigo). 12.30 a.m. (Sunday), Celebrity Concert: Maurice Chevalier: (a) Paris stay the Same, (b) Nobody's using it Now; Stanley Holloway: (a) The Lion and Albert, (b) 'Alt 'oo goes there?; Maurice Chevalier: (a) Valentine, (b) My Love Parade; Stanley Holloway: (a) Three ha'pence a foot, (b) Ole Sam. 1.0, Pianoforte and Song Recital; Pianoforte Solo; I found You (Noble); Songs: (a) Eleanor (Harley), (b) Never swat a Fly (de Sylva), (c) That Night in Venice (Nicholls); Pianoforte Solo; Let Love take care of You; (van Phillips); Songs: (a) I'm in the Market for You (McCarthy), (b) Sitting on a Five-Barred Gate, (c) When I passed the old Church Door (Nicholls). 1.30, Variety Music; Sketch, Peter Perkins at the Races; Yodelling Love Song; If you can't Sing, Whistle; Sketch, Doon the Clyde; Song, Lena; They never go to bed in China. 2.0, Light Music; An Evening in Caroline; Now that you're gone; By the Sycamore Tree; Blues in my Heart; Now's the Time to fall in Love; Only me knows Why; Hot Coffee; Was that the Human Thing to Do?; Goodnight Vienna; She didn't say "Yes"; Five Minutes to Twelve; Snap Your Fingers; Somebody Loves You; Snuggled on your Shoulder; Majah General Thing-a-me-bob. 2.57, I.B.C. Good-night Melody. 3.0, Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW.. **CASSEL, 245.9 metres, and TRIER, 259.3 metres.**—6.15 p.m., Time, Programme Announcements, Weather, and Economic Notes. 6.30, Reading from Andreas oder die Vereinigten (Hugo von Hofmannsthal). 7.5, Variety Concert in Aid of the Cassel Winter Relief Fund, relayed from the Town Hall, Cassel. 9.20, Time, News, Weather, and Sports Notes. 9.45, See **Munich.** 11.0 (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 565 metres;** and **Kiel, 232.2 metres.**—3.30 p.m., Concert by the Station Orchestra and the German Saxophone Quartet, conducted by Adolf Seeker: Overture, Der Waffenschmied (Lortzing); Fantasia on the Folk Song, Ich hatte einst ein schönes Vaterland, Op. 51, No. 2 (Rumcke); Czardas from Der Geist des Wojewoden (Grossmann); Prelude and Scherzo in A Flat, Op. 20, No. 2 (Rupicke); Miniature Overture (Tchaikovsky); Fantasia on the Folk Song, Schön Rotraut, Op. 53, No. 2, for Saxophone Trio; Prelude (Järnefeldt); Rhapsody No. 3 (Liszt). 4.30, Talk on Unemployment. 4.55, The True Sea Story of the Week. 5.5, Choral and Instrumental Concert, relayed from the Educational Institute, Rostock. 6.0 (from **Bremen**), Talk: Australia. 6.25, Weather Forecast. 6.30, Report on the Fiftieth Anniversary of the German Rowing Clubs Association. 7.0, Variety Programme from **Langenberg.** 9.30, Time, Weather, News, Sports and Police Notes. 9.50, Topical Talk. 10.0, Dance Music. In an interval at 10.20, Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW. and **DANZIG, 453.2 metres.**—12.5 p.m., Light Music on Gramophone Records. In the interval at 12.20, News. 1.30, Programme with Gramophone Records arranged by the Post Office. 2.0, Agricultural Prices and Exchange Rates. 2.30 (from **Danzig**), Handwork for Children. 3.0, Concert. In the interval at 3.50 (approx.) (from **Danzig**), Talk on Films. 4.35, Reading from the Diary of a Woman Teacher. 5.0, Programme Announcements. 5.10, Programme Announcements in Esperanto. 5.15, Agricultural Prices. 5.20, Ice Report. 5.30, World Market Report. 5.40, Talk: The Modern Amateur Photographer. 6.5, Gramophone Concert: Selection from La boutique fantasque (Rossini-Respighi); Song from Carmen (Bizet); Minuet from the Divertimento for Viola da Gamba and Harpsichord (Haydn); Song from Il re pastore (Mozart); Andante grazioso and Scherzo from the Trio Op. 33 (Goldmark); Song from Der Rosenkavalier (R. Strauss); Indian Lament for Violin (Dvorak-Kreisler); Song from The Bird Fancier (Zeller); Waltz from The Arabian Nights (Joh. Strauss). 6.55, Weather and News. 7.5, See **Frankfurt.** 9.20, Weather, News and Sports Notes. 9.30 (approx.) Dance Music from **Berlin (Witzleben).** 10.30, Dance Music by Ambrose and his band relayed from **London.** 12 midnight (approx.), Close Down.

HILVERSUM

Announced **HUIZEN, 296.1 metres;** 20 kW. (7 kW. up to 4.40 p.m.).—Programme of the Workers' Radio Society (K.R.O.). 11.55 a.m., Concert by the Con Brio Trio: Tarantella (Smith); Serenata Diabolica (Cerri); Dutch Peasant Dances (Siep); Der Zweifel (Glinka); Aus Mozarts Reich (Urbach); Tambourin (Rameau). Gramophone Records: Potpourri (Komzak); Oh! Star of Eve from Tannhäuser (Wagner); Vers l'avenir (Vlessing). 12.25 p.m., Interval. 1.40, Programme for Young People. 2.10, Programme for Children. 3.40, Popular Music on Gramophone Records. 4.10, Concert by the K.R.O. Orchestra conducted by M. van 't Woud: March (Blon); Overture, Das Leben ein Traum (Eilenberg); Selection from The Daughter of the Regiment (Donizetti); Hesitation Waltz (Colwery); Rhapsody España (Chabrier). 4.55, Sports Notes. 5.10, Orchestral Concert (contd.): Selection from I Pagliacci (Leoncavallo); Sommerabend am Rhein (Zimmer). 5.30, Song Recital by Mme. Mieke Delmans. 5.40, Orchestral Concert (contd.): Modern Ballet Suite (Armandola); Parade des embonpoints (Aubert). 6.0, Review of Periodicals. 6.20, Orchestral Concert (contd.): Overture, Martha (Flotow); Selection from Die Meistersinger von Berlin (Lincke); Hurrah! die Musik kommt (Zimmer). 6.50, Scientific Talk. 7.10, Police Report. 7.25, Sports Notes. 7.40, Concert by the K.R.O. Boys conducted by P. Lustenhouwer: Soloist, J. Mossel (Songs). 8.15, News. 8.20, Songs by H. Durand. 8.40, Song Recital by Mlle. Mieke Delmans. 8.50, Concert by the K.R.O. Boys: Heut' reiss ich die Welt zusammen (Strauss); Schau' mir ins Auge (Strauss-Grün); Man liebt nicht nur zur Sommerzeit (Dessau); Waltz, Lotosblumen (Ohlsen); Die goldene Spieldose (Krome). 9.20, Songs by H. Durand. 9.40, Concert by the K.R.O. Boys: March Potpourri (Ciere); First Waltz (Nicholls); Fünf Uhr Tee bei Robert Stolz (Dostal); Selection from Zigeuner der Nacht (Abraham); Spanish Waltz (Sentis); Potpourri, Wir schlagen ein (Golwyn); Mach's mir nicht so schwer (Stransky); Tempo di marcia (Neumann). 10.40, News. 10.45, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres;** 8.5 kW. 11.40 a.m. till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). 11.40, Concert by De Notenkrakers. 1.40 to 1.55, Interval. 1.55, Light Music on Gramophone Records. 2.30, Talk. 2.50, Popular Music on Gramophone Records. 3.20, Wireless Technical Talk. 3.40, Concert by the V.A.R.A. Balalaika Orchestra, conducted by M. Powarief. Ralnska (Bojardin); Andante cantabile (Tchaikovsky); Czardas (Kempner); Ballet Music from Fiammetta (Minkus); Chanson triste (Tchaikovsky); Russian Melodies; Czardas (Michiels); Rakoczy March (Strauss). 4.10, Talk. 4.30, Concert by De Flierefluiters, conducted by H. de Groot. Soloist: A. de Booy (Songs). Solidaritätslied (Eysler); Songs: (a) Der schönste Gedanke (Abraham), (b) Eins, zwei, drei und vier (Abraham), (c) Ein bisschen Spass (Abraham); Piece (Brown); Im Schwarzwald geht ein Mühlenrad (Rust); Song from Viktoria and her Hussar (Abraham); Song (Abraham); Balloons (Magine); Song, Wer nimmt die Liebe ernst (Gross); Rhythm like this (Bamberger); Signorina, ich liebe dich (Jurman); So ein Jägersmann (Delmar); La Marseillaise (l'Isle-Rouget). 5.20, Literary Talk. 5.40, Choral Concert. 6.10, Violin Recital by A. Knorre. 6.40, Talk: Karl Marx. 7.10, S.O.S. Announcements. 7.12, Light Music on Gramophone Records. 7.25, Organ Recital by J. Jong, with Songs by L. Fuld. 7.55, De Bilt sojnt Revue (Meyer Hamel and Rido). 9.10, Address. 9.20, Concert by the V.A.R.A. Orchestra, conducted by H. de Groot. March, The Liberty Bell (Sousa); Moonlight on the Alster (Fetras); In a Turkish Bazaar (Dreyer); Selection from No, No, Nanette (Youmans). 9.40, The Village Barber. 9.55, Concert (contd.). Overture, Pique Dame (Suppé); Marchiare (Trosti); Song (de Groot); Chinesische Strassenserenade (Siede); Selection from Rose Marie (Friml); Perpetuum mobile (Strauss). 10.40, Announcements and News. 10.55, Concert (contd.), March Potpourri (Ciere); Kind, du kannst tanzen (Fall); Selection from The Love Parade (Schertzinger); In a Chinese Temple Garden (Ketelbey); Mariszka and Czardas (Lehár); Overture, Zampa (Hérold). 11.40 (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—6.0 p.m., Announcements and Gramophone Records. 6.10, Talk. 6.30 to 10.25, See **Warsaw.** 10.25, Dance Music on Gramophone Records.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres; 40 kW.; and **HELSINKI, 368.1 metres.**—5.35 p.m., The Bayadere—Operetta (Kálmán), relayed from the Workers' Theatre, **Tampere, 560 metres.** In the interval at 8.10, News in Finnish and Swedish, followed by Dance Music from the Kämp Restaurant.

LANGENBERG

473 metres; 60 kW.—12 Noon, Concert, conducted by Wolf: Overture, Die Felsenmühle (Reissiger); Waltz, G'schichten aus dem Enns-Tal (Pachernegg); Suite from The Merchant of Venice (Sullivan); Rêverie (Vieuxtemps); Italian Caprice (Tchaikovsky); Boston, Vineta-Glocken (Lindsay-Theimer); Potpourri, Tonwellen (Mannfred). In the interval at 1.0 p.m., News. 1.35, Gramophone Concert of Light Music. 2.30, Economic Notes and Time. 2.50, Programme for Children. 3.10, Reading: Himmlische Landschaft (René Schickele). 3.30, English Reading. 4.0, Choral Concert from Bielefeld. In the interval, Concert by a Mandoline Quartet, from Bad Aachen, with Songs to the Lute. 5.20, Talk for Women: Difficult Children from the Age of Ten to Fourteen. 5.45, Weather, Time, Economic Notes, and Sports Results. 6.0, Talk: What Everyone should know about the Telephone Book. 6.25, Talk. 6.55, News. 7.0, Variety Concert. 9.5, News and Sports Notes. 9.30, Serenade, conducted by Wolf. 10.30, Dance Music from **London.** 12 Midnight, Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres, 120 kW.; and **DRESDEN, 319 metres.**—11.5 a.m., Gramophone Concert: Extracts from Undine (Lortzing); Extracts from Der Freischütz (Weber); Overture and Ocean Aria from Oberon (Weber). 12 Noon, News, Weather, Snow Report and Time. 12.15 p.m., Gramophone Concert: Potpourri of Rhenish Marching Songs; Salzburg Carillon; Waldeszauber (Kollmaneck); Sedan March (Lange); España Waltz (Waldteufel); Wenn Rosen erwachen (Krützfeldt); Dream Waltz (Millöcker); March, Tritt gefasst (Windisch); The Loreley (Silcher); Hungarian Folk Song Potpourri (Por); Halling (Halvorsen); Hengst Waltz (Halvorsen); Torero Ramon (Kostal); Neapolitan Serenade (Bayer). After the Concert, Exchange Quotations. 1.0, Wireless Hints. 1.10, Wireless News. 1.30, Programme for Children. 2.15, Talk; Denominational Religion. 2.45, Exchange Quotations. 3.0, See **Berlin (Witzleben).** 4.15, Romantic Music by Johannes Brahms, by a Choir conducted by Heinrich Werlé and Soloists. 4.45, Talk on Music. 5.0, Talk for Young People: Three German Boys discover Sweden. 5.30, Talk: German Idiom and Metaphor. 5.50, A Modern Dictionary. 6.0, Talk on Finance. 7.0, The Bird Fancier—Operetta in Three Acts (Zeller). In the Interval, First News. 9.10, Second News. 9.25 (approx.), Dance Music by the Emdé Orchestra. 11.0 (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

574.7 metres; 7 kW.—6.0 p.m., Talk: The History of Philosophy. 6.30, Talk on Sociology. 7.0, Guitar Recital. 8.0, Song Recital by Mme. Levicnik. 8.30, Quintet Concert. 9.0, Time, News, and Light Music.

LWOW

381 metres; 16 kW.—6.10 p.m., Miscellaneous Items. 6.30, See **Warsaw.** 11.0 (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South-East. 8.30, Madame Pompadour—Operetta (Fall), relayed from **Paris (Ecole Supérieure) (447.1 metres).** News after the Programme.

MADRID

ARANJUEZ, EAQ, 30.43 metres; 20 kW.—6.0 to 8.0 p.m., Programme for Listeners in the Canary Islands, Guinea, and America. 6.0, Concert of Popular Music. 7.15, Talk. 7.30, Dance Music. 8.0 to 10.30, Interval. 10.30, Variety Music. 10.45, Radio Chronicle. 11.0, Variety Music (contd.). 11.40, Light Music. 12 Midnight (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—7.0 p.m., Chimes, Exchange Quotations, and Request Gramophone Records. 8.15, News Bulletin. 8.30 to 9.0, Interval. 9.0, Linguaphone English Lesson. 9.30, Chimes, Time Signal, and Transmission of a Musical Comedy. 11.45, News Bulletin. 12 Midnight, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—5.25 p.m., Concert by School Children. 6.0, See **Prague.** 7.30, See **Brno.** 8.0, Military Band Concert, conducted by F. Michalek. 9.0, See **Prague.** 9.15, Concert of Light Music by the Station Orchestra, conducted by J. Plichta. 10.30 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—3.0, Talk: The Peasants' Revolts. 5.30, Concert, relayed from the Radio Theatre. 8.0, Talk in French: The Paris Commune.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres;** and **Nürnberg, 239 metres.**—4.0 p.m., The Gregarian Chant—Talk with Illustrations. 4.35, Two Talks for Girls. 5.10, Talk: Motoring during a Thaw. 5.25, Bops and Malt—a Fantasia (Franz Weichenmayer and Wilfrid Feldmütter). 6.25, Wireless Hints. 6.40, Wireless Technical Talk. 7.0, Böhmische Musikanten (Bohemian Musicians)—Musical Play in Three Acts (Bernhard Grün). 9.20, Time, Weather, News and Sports Notes. 9.45, Serenade, conducted by Erich Kloss. 11.0, (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 355.8 metres; Hamar, 574.7 metres; Notoddan, 447.1 metres; Porsgrund, 453.2 metres;** and **Rjukan, 447.1 metres.**—3.30 p.m., Popular Music on Gramophone Records. 4.15, Programme for Children. 5.15, Song and Hardanger Fiddle Recital of National Music. 5.45, Economic Talk. 6.0, Announcements, Weather and News. 6.30, Talk: The Care of the Teeth. 7.0, Cabaret Programme. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Cabaret Programme (contd.). 9.45, Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

537.6 metres; 3 kW.—7.0 p.m., Dopolavoro Notes, Tourist Talk, Agricultural Notes, and Giornale Radio. 7.20, Sports Notes. 7.25, Popular Music on Gramophone Records. In an interval at 7.30, Time and Announcements. 7.45, Cin-ci-là—Operetta in Three Acts (Ranzato). In the Intervals, Book Review and Amusement Guide. After the Operetta, News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 9.26 a.m. and 10.26 p.m. (Preliminary and 6-dot Signals).—5.45 p.m., Le Journal Parlé. 7.20, Weather Report. 7.30, Dramatic Programme: "Don Juan"—Play (Molière), with Music by Mozart. 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—6.45 p.m., Journal Parlé. 7.0, Answers to Correspondents. 7.5, Popular Music on Gramophone Records. 8.0, Talk: The Event of the Week. 8.5, Theatre Notes. 8.15, Interval. 8.30, Concert of Chamber Music. 9.0, Interval. 9.10, Dance Music by the Sonora Orchestra, conducted by Fred Hoffmann. 11.0, Dance Music on Gramophone Records. 12 Midnight (approx.), Close Down.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Light Music on Gramophone Records. 8.0, Press Review and Weather. 9.0, Concert relayed from the Conservatoire. 12 Noon, Concert by the Radio Paris Orchestra: Chant sans paroles (Tchaikovsky); Castilian Dance (Turina); Zino-Zina (Vidal); Intermezzo (Vuillemin); Spinning Chorus from The Flying Dutchman (Wagner); Selection from Preciosa (Weber); Legend (Wieniawski); Selection from Il Trovatore (Verdi); Le Carnaval de Venice (Thomas); Piece (Silver); Hungarian Impromptu (Schubert); Piece (Sudessi); Gipsy Dance from Henry VIII (Saint-Saëns); Selection from Le bon roi Dagobert (Rousseau). In the intervals at 1.0, Exchange, News and Weather, and at 1.30, Exchange. 2.0, Exchange. 3.0, Programme for Children. 3.45, Exchange and Market Prices. 3.50, Dance Music by the Radio Paris Orchestra. 6.30, Market Prices, Weather, Agricultural Report, and Exchange. 7.0, Legal Talk. 7.20, Agricultural Talk. 7.45, Commercial Prices and News. 8.0, Popular Programme. 8.30 News and Weather. 8.40, Review by Dorin. 8.45, Authors and Musicians of the Ardennes—Literary and Musical Programme. In the interval at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA); 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.—9.0 p.m.,** Dance Masters, from **New York. 9.30,** Concert Favourites, from **New York. 10.0,** Programme to be announced. **10.15,** Hotel Sherman Orchestra, from **New York. 10.30,** Weather Report. **10.32,** Behind the Law—Tales of the Pennsylvania State Police. **10.45,** Little Orphan Annie, from **New York. 11.0,** Programme to be announced. **11.15,** Time Signal. **11.16,** Temperature Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.27,** Strange Facts. **11.29,** Weather Report. **11.30,** Programme to be announced. **11.45,** A Recreo by Bill and Abe, of the Downtown Y.M.C.A. **11.59,** Time Signal. **12 Midnight,** Fields and Hall, from **New York. 12.15 a.m. (Sunday),** Atkinson String Ensemble. **12.30,** Programme to be announced. **12.45 to 4.0, New York** Relay. **12.45,** Townsend Murder Mystery. **1.0,** American Taxpayers' League. **1.15,** The Boston Symphony Orchestra. **3.15,** Salon Singers. **3.30,** Cuckoos. **4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.13,** KDKA Artist Bulletin. **4.15,** Press Last Minute News. **4.20,** Messages to Presbyterian Missionaries. **5.20,** Messages to Dwellers of the Far North.

PORSGRUND.—See **Oslo.**

POZNAN

335 metres; 1.9 kW.—**5.20 p.m.,** Song Recital. **6.20,** Miscellaneous Items and News. **6.45,** See **Warsaw.** In the interval, Theatre Notes and Programme Announcements. **9.0,** Time, Sports Notes and Police Announcements. **9.5,** See **Warsaw. 9.40,** News. **9.50,** Dance Music from the Café Polonia. **10.50** (approx.), Close Down.

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.,** See **Bratislava. 4.10,** Talk on Economics. **4.20,** Czech Lesson for Germans and German Lesson for Czechs. **4.50,** Popular Music on Gramophone Records. **5.5,** Agricultural Report. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission: Talk: Richard Wagner and Prague. **6.0,** Chimes. **6.1,** News Bulletin. **6.10,** Talk: How to become a Reporter. **6.25,** War and Peace in Marches—Programme by the Prague Wind Instrument Orchestra, conducted by Professor A. Modr, and Students of the Academy of Dramatic Art: Two Marching Scenes from the Napoleonic Wars; Congress is marching—Radio Play of the Year 1815; Wellington's Victory—Impressions of the Concert conducted by Beethoven in the Vienna University Hall on December 8, 1813; Incidental Music: Wellington's Victory, Op. 91 (Beethoven). **7.30,** Concert of Light Music. **8.0,** Time Signal. **8.1,** Popular Programme of Dance Music and Light Music. **9.0,** Time Signal. **9.1,** News Bulletin. **9.15,** See **Moravská-Ostrava. 10.30** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.—5.30 p.m.,** Book Review. **6.0** (from **Geneva**). Weather Forecast, News Bulletin, and Announcements. **6.30** (from **Geneva**), Talk on Films. **7.0** (from **Geneva**), Talk: The History of Cycling in Geneva. **7.35** (from **Geneva**), Variety Programme: Part I—Radio Fantasies—in a Prologue and Seven Scenes; Part II—Cabaret Programme, arranged by Ruy Blag. In the interval: News Bulletin.

REYKJAVIK

1,200 metres; 21 kW.—**8.30 p.m.,** Weather Report. **8.40,** Musical Programme and Announcements. **9.0,** Chimes. **9.2,** News Bulletin. **9.30,** Reading. **10.0,** Concert by the Station Quartet and Choral Music on Gramophone Records. After the Programme, Dance Music. **1.0 a.m.** (Sunday), Close Down.

RIGA

525 metres; 15 kW.—**5.0 p.m.,** French Lesson. **5.30,** Agricultural Talk. **6.0,** Weather Report. **6.5,** Humorous Songs and Duets. **6.40,** Sketch. **7.0,** News. **7.20,** Instrumental Music. **8.0,** Weather and News. **8.15,** Sketch. **8.30,** Choral Concert. **9.0,** Dance Music. **10.0** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres,** and **2RO, 25.4 metres.—6.45 a.m.,** Gymnastics. **7.15 to 7.30,** Giornale Radio and Announcements. **11.30,** Weather and Light Music on Gramophone Records. **12 Noon,** Time and Announcements. **12.2 to 1.15 p.m.,** Orchestral Concert: Only your Love (Lopez); Song (Nicholls); Selection from The Count of Luxembourg (Lehar); Melody (Raymond); First Arabesque (Debussy); Saxophone Solo, Lasciato sbonare (Escobar); Intermezzo from William Ratcliff (Mascagni); Scherzo (Bucchi); Autumn (de Curtis); Melody (Moore); Pupazzetti giapponesi (Ranzato); Ugo (Mariotti). In the interval at **12.30,** Giornale Radio and Exchange. **3.45,** Children's Radio Review and Programme for Young People. **4.0,** Exchange, Announcements, and Report of the Royal Geographical Society. **4.15,** Reading. **4.30 to 5.15,** Orchestral Concert: Overture, The Siege of Corinth (Rossini); Serata a Parigi (Giorgi); Commedia (Escobar); Pianoforte Solo, Ninna Nanna (Scarlino); Le smanie di Colombina (Carly); Improvisation for Pianoforte (Santoliquido); Pianoforte Solo, Polichinelle (Rachmannov); Willy (Hayos). **6.0 (Naples),** Shipping and Sports Notes. **6.10,** Lesson in Morse. **6.20,** Giornale Radio and Agricultural Report. **7.0,** Time, Announcements, and Light Music on Gramophone Records. **7.45,** Relay from a Theatre. In the intervals, Review of Books, Literary Notes, and News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.—12 Midnight,** El Tango Romantico, from **New York. 12.15 a.m. (Sunday),** Stock Report. **12.30,** Lady Fingers (Pianist). **12.45 to 3.0, New York** Relay. **12.45,** The World To-day, by James G. McDonald. **1.0,** Echoes of the Palisades. **1.30,** The Economic World To-day. **2.0,** The Blue Danube. **2.30,** Oldsmobile Programme—Olsen's Orchestra. **3.0,** Lucky Strike Hour, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE, 244.1 metres;** and **BERNE, 245.9 metres.—9.20 a.m.,** Nordheld Andrée—Radio Play (Paul Lang). **11.28,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40** (from **Berne**), Variety Music on Gramophone Records. **12.35 p.m.,** Weather and Exchange. **12.45** (from **Basle**). The Listeners' Half-hour. **1.0** (from **Basle**), Book Review. **1.30** (from **Basle**), Choral Music on Gramophone Records. **2.0** (from **Basle**), Talk on Dentistry. **2.30** (from **Basle**), Lesson in Chess. **3.0** (from **Basle**), Concert by the Matschu-Vercelli Accordion Sextet. Soloist: Max Husi. **3.40** (from **Basle**), Talk in English: Delightful Holidays spent at Basle. **4.0,** Cinema Organ Music on Gramophone Records. **4.30 to 4.35,** Weather Forecast. **5.30** (from **Basle**), Talk for Women: Beautifying the Home. **6.0** (from **Zürich**), Chimes from the Zürich Churches, followed by Time Signal, Weather Forecast and Market Prices. **6.15** (from **Basle**), Talk: Occupation and Leisure. **6.45** (from **Basle**), Concert by the Basle Choral Society. **7.5,** The Skiers Paradise—Four Humorous Scenes (Richard Rheinberger). **7.50** (from **Basle**), Concert (contd.). **8.10** (from **Basle**), Orchestral Music on Gramophone Records. **8.30,** Weather and News. **8.40** (from **Basle**), Old and New Dance Melodies on Gramophone Records. In the intervals: Songs. **10.0** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.—4.5 p.m.,** Programme for Children, relayed from **Malmo, 231 metres. 4.40,** Popular Music on Gramophone Records. **5.30,** Talk, relayed from **Karlstad, 217 metres. 6.0,** Song Recital by Oscar Tiernberg. **6.30,** Talk, relayed from **Uppsala, 453.2 metres. 7.0,** Old Dance Music. **7.45,** Variety Programme. **9.0,** Dance Music. **10.0** (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.,** Orchestral Concert, conducted by M. de Villers. **12.45 p.m.,** News Bulletin. **1.0,** Time and Exchange Quotations. **1.5,** Variety Music on Gramophone Records. **2.0 to 3.0,** Interval. **3.0,** Military Band Concert. **3.45,** Talk on Music: Brahms and Clara Schuman. **4.0,** Dance Music on Gramophone Records. **4.45,** Legal Talk in German. **5.0,** Pasdeloup Symphony Concert, relayed from the Theatre des Champs-Elysées, Paris. **7.0,** French Lesson. **7.15,** Horticultural Talk. **7.30,** News. **7.45,** Light Music on Gramophone Records. **8.20,** Lottery Results and Announcements. **8.30,** Military Band Concert relayed from the Municipal Theatre, Thionville: Mon beau Pays d'Alsace (selleneck); Overture, La Princesse Jaune (Saint-Saëns); Trio for Flute, Clarinet, and Cor Anglais (Beethoven); Good Friday Music from Parsifal (Wagner); Dances in Old Style from Le Roi s'amuse (Delibes); Les Grenadiers de la Garde á Waterloo; Selection from Carmen (Bizet); First Movement from the Norwegian Rhapsody (Lalo); Saxophone Quartet: Avowal (Matheo-Briard); Song: Souhait à la France (Passard); Ballet Music from Javotte (Saint-Saëns); Arabesque (Renaud); March (Fritsch); Talk in the interval. **10.30,** Dance Music from the Savoy Dance Hall. **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.—12.30 p.m.,** Orchestral Concert: March, Treu wie Gold (Wiesmeier); Suite, Luxustelegramme (Hollaender); Waltz, Frühlingsbotschaft (Fucik); Volksliedchen (Komzak); Märchen (Komzak); Waltz Potpourri (Schneider); Zwanzinette from Eva (Lehár). **1.30,** Time, News, Weather, and Programme Announcements. **1.45,** Hugo Wolf and Richard Strauss Song Recital by Karl Jantz (Tenor): Songs (Wolf), (a) Verborgenheit, (b) Verschwiegene Liebe, (c) Der Gärtner; Songs (Strauss), (a) Breit über mein Haupt, (b) Ständchen, (c) Zueignung. **2.10,** Italian Folk Music on Gramophone Records. **2.30,** Programme for Young People. **3.30** (from **Karlsruhe**), Zither Recital. **4.0,** Programme to be announced. **5.0,** A Discussion between Rudolf Ismayr, the Winner of the Weight-Lifting Competition at Olympia, and Carl Struve. **5.15,** Time and Sports Notes. **5.25,** Talk on the Twenty-Fifth Anniversary of the Death of Eduard Zeller. **5.50,** Talk: Defective Goods. **6.15,** Time, News, Weather and Snow Report. **6.30** (from **Freiburg**), Radio Report on the Weekly Market in the Münsterplatz. **7.5** (from **Freiburg**), Military Band Concert, relayed from the Festhalle. **9.0,** Time, News, Weather, Snow Report, and Programme Announcements. **9.20,** Radio Report on the Riding and Jumping from the Town Hall. **9.45,** See **Munich. 10.30,** Dance Music from **London. 12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONE DU MIDI, 385 metres; 8 kW. —**6.0 p.m.,** News Bulletin. **6.15,** Opera Music: Selection from (a) Manon (Massenet), (b) Fortunio (Messager), (c) Carmen (Bizet), (d) La Bohème (Puccini). **6.20,** Prelude and Death of Isolde, from Tristan und Isolde—Opera (Wagner). **6.45,** Accordion Music. **7.0,** Popular Melodies. **7.15,** Racing Results and News. **7.25,** Local News Bulletin. **7.30,** Opera Music: Hungarian March from The Damnation of Faust (Berlioz); Scene from Lohengrin (Wagner); Polonaise from Boris Godunov (Mussorgsky). **7.45,** Extracts from Sound Films. **8.0,** Concert by a Viennese Orchestra. **8.20,** Opera Music: Airs from: (a) Griselidis (Massenet), (b) The Valkyries (Wagner), (c) Faust (Gounod). **8.45,** Organ Recital. **9.0,** Extracts from La Mascotte—Operetta (Audran), followed by Symphony Music: Air from La Princesse jaune (Saint-Saëns); Ronde villageoise (Chabrier); Minuet in G (Paderevsky); Air from The Desert Song (Romberg); Melody from Schwanda the Pipe (Weinberger); Sphinx (Popy); Potpourri (Zimmer). **10.15,** North-African News. **10.20,** Concert for Listeners in Morocco: Classical Souvenirs; Air from Louise (Charpentier); Overture, Morning, Noon and Night (Suppé); Melody (Borel Clerc); Xylophone Solo: American March (Sousa). **11.0,** Request Concert: Air from Nina Rosa (Romberg); Aria from Werther (Massenet); Quand on s'aime bien tous les deux; Violin Solo: Berceuse; Je sais que vous êtes jolie (Christiné); Violin Solo: Hindu Song (Rimsky-Korsakov); Overture, Poet and Peasant (Suppé). **11.30 to 12 Midnight,** Programme in English by the I.B.C., H. K. Hitchcock announcing. **11.30,** I.B.C. Half-hour: Waltz, Gold and Silver (Lehár); Down in the Fields where the Buttercups grow; Runnin' up and down our Street; Waltz Popples; Sandy the Doctor; I hear you calling me; Sweethearts of Yesterday. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Sunday),** Tangos. **12.15,** Military Music. **12.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**4.10 to 6.0 p.m.,** See **Turin. 6.0,** Light Music on Gramophone Records. **6.20 to 6.35,** See **Turin. 6.35,** Recital of Music by Zoltan Kodaly, with Introductory Talk: Sonata for 'Cello and Pianoforte, Op. 4. **7.0** (approx.) till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.—4.10 to 5.0 p.m.,** Dance Music from the Savoia, Turin. **5.35,** Giornale Radio, Agricultural and Dopolavoro Notes. **6.0,** Light Music on Gramophone Records. **6.20,** Giornale Radio. **6.30,** Time, Announcements, and Variety Music on Gramophone Records. **7.0,** Giornale Radio and Weather. **7.15,** Talk: Events and Problems, followed by Gramophone Records (contd.). **7.45,** Reading from and Commentary on the Fourteenth Canto of the Inferno. **8.10,** The Last Waltz—Operetta in Three Acts (Oscar Straus). In the interval, Review of Books and Announcements. Giornale Radio after the Programme. **10.5,** Dance Music from the Rajola, Florence. **10.50** (approx.), Close Down.

VATICAN CITY

19.84 metres (Morning) and 50.26 metres (Evening); 10 kW.—**10.0 to 10.15 a.m.,** Religious Announcements in Different Languages. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.—4.55 p.m.,** Concert by the Oscar Jascha Orchestra; Soloist: Josef Kozler (Violin); Overture, Hans Heiling (Marschner); Traumwalzer (Millöcker); Violin Solos, (a) Hymn to the Sun (Rimsky-Korsakov-Kreisler), (b) Serenade (Pierné); Selection from The Rose of Stamboul (Fall); Waltz, Jugendideale (Lehár); Russian Dances from Tatiana (Lehár); Overture, Wiener G'schichten (Hellesberger-Jascha). **6.0,** Topical Talk. **6.30,** The Maxim. **6.35,** Time, Weather, Sports Notes, and Programme Announcements. **6.45,** Concert of Operetta Music by the Alois Dostal Orchestra; Soloist, Maja Rajic (Soprano): Overture, The Land of Smiles (Lehár); Waltz from Madame Pompadour (Fall); Song from Katja the Dancer (Gilbert); Vera's Song, from The Last Waltz (O. Straus); Selection from Viktoria and her Hussar (Abraham); Margarete's Song from Die goldne Meisterin (Eysler); Song from Waltzes from Vienna (Strauss-Bittner-Korngold); Selection from Der Teufelsreiter (Kálmán). **8.10,** Mass in G (Weber), by the Hofmusikkapelle, conducted by Carl Luze. **8.50,** News, Weather, and Announcements. **9.5,** Dance Music by the Ley Geiger Band, relayed from the Café Splendide; Soloist, Hans Grünhut (Songs).

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Bugle Call from the Tower of St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Light Music on Gramophone Records. **12.10 p.m.,** Weather Forecast. **12.15,** Programme relayed from **Lwow, 381 metres. 12.55 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.25,** Military Notes. **2.35,** Programme for Young People. **3.0,** Light Music on Gramophone Records. **3.20,** Talk on History. **3.40,** Talk: Marshal Joseph Pilsudski. **4.0,** Suite, Iberia (Debussy), on Gramophone Records. **4.35,** Topical Talk. **4.55,** Programme Announcements. **5.0,** Talk on Polish Literature: The Historical Novel of the Nineteenth Century. **5.20,** News. **5.25,** Light Music. **6.0,** Miscellaneous Items. **6.20,** Agricultural Talk. **6.35,** Topical Talk. **6.45,** Radio Journal. **7.0,** Concert of Polish Folk Music. The Station Orchestra, conducted by Navrot. Soloists: L. Szczopanska (Soprano), M. Janowski (Tenor), and C. Olesinski (Accordion). In the interval, Sports Notes and Radio Journal. **9.5,** Chopin Pianoforte Recital by J. Turczynski: Impromptu in G flat; Polonaise in E flat Minor; Two Waltzes, Op. 64 (a) in C sharp Minor, and (b) in E flat; Three Mazurkas, Op. 56: (a) in B, (b) in C, and (c) in C Minor; Tarantella. **9.40,** Reading. **9.55,** Aviation Weather Report and Polish Notes. **10.0,** Dance Music. In the interval at **10.30,** News for Members of the Polish Polar Expedition.

WILNO

563 metres; 16 kW.—**6.0 p.m.,** Reading. **6.10,** Miscellaneous Announcements. **6.35,** Talk. **6.30** till Close Down, See **Warsaw. 10.0** (approx.), Close Down.

ZAGREB

307 metres; 0.75 kW.—**5.20 p.m.,** Talk in Esperanto. **6.40,** Announcements. **7.0,** Vocal Concert. **8.0,** Concert by the Station Orchestra. **9.0,** News and Weather. **9.10,** Light Music, relayed from the Esplanade Hotel. **10.30** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

MARCH 18th SATURDAY *continued*

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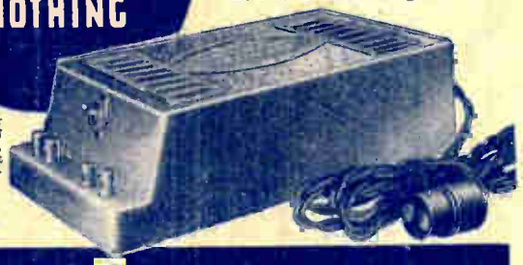

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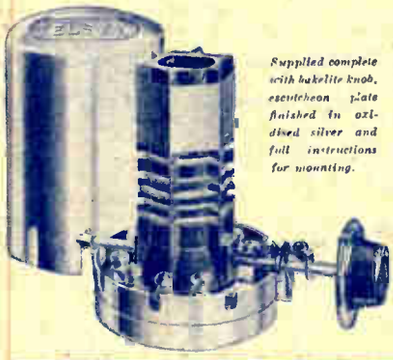

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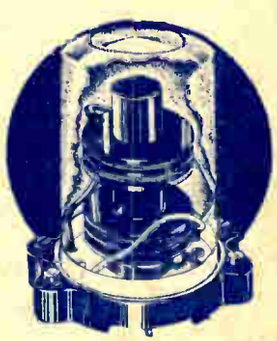

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Here is a piece of apparatus for which many have been waiting—a complete Gramophone Amplifier of a compact and more or less portable nature, comprising a quality Amplifier of 25 watts, a high grade electric motor and pick-up, volume control, switch, connecting plugs, etc. The whole is enclosed in a light steel case and can be locked up. In operation it will be found ideal for home use where considerable power is required, for dancing, cafes, hotels, entertainments, shops and many other uses. Several Speakers can be operated, which may be placed in different rooms if desired, thereby adding considerably to its usefulness.

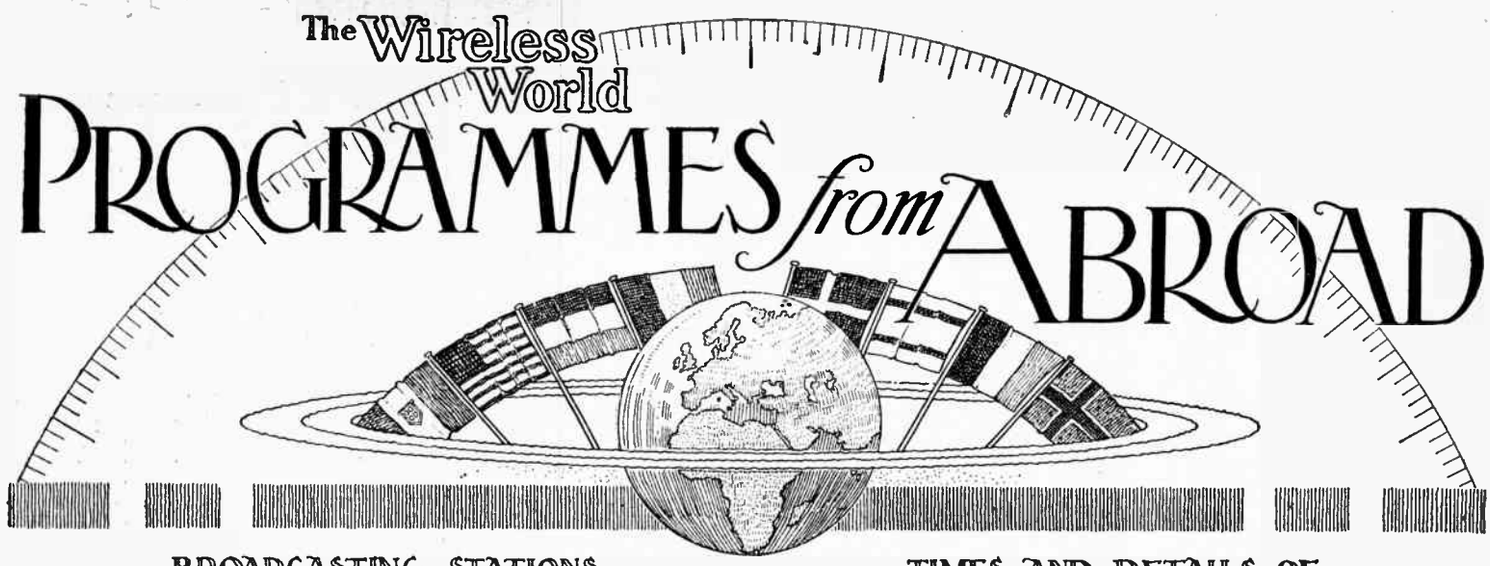
PARTRIDGE & MEE LIMITED

Aylestone Park, LEICESTER
AYLESTONE 487.

74, New Oxford St., LONDON, W.C.1
MUSEUM 5070.

The Wireless World

PROGRAMMES *from* ABROAD



BROADCASTING STATIONS ARRANGED IN ORDER OF WAVELENGTH

TIMES AND DETAILS OF FULL WEEK'S FOREIGN TRANSMISSIONS

Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)	
1875	160	8.5	Hilversum (Holland)	
1796	167	40	Lahti (Finland)	
1725	174	75	Radio Paris, C.F.R.	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (*S.-W. Stn. DJA on* 31.38 *m.*)	
1554.4	193	30	Daventry National	
1538	195	7	Ankara (Angora) (Turkey)	
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)	
1446	207.5	13	Eiffel Tower, FL, Paris	
1412	212.5	120	Warsaw 1 (Poland)	
1380	217.5	100	Novosibirsk, RV6 (Russia)	
1354.4	221.5	30	Motala (Sweden). (*Relays Stockholm*)	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)	
1275	235	0.5	Tunis-Kasbah (Tunisia)	
1230	244	0.6	Boden (Sweden). (*Relays Stockholm*)	
1200	250	5	Stamboul (Turkey)	
1200	250	21	Reykjavik (Iceland)	
1170	256	25	Tashkent, RV11 (Russia)	
1154	260	7.5	Kalundborg (Denmark). (*Relays Copenhagen*)	
1117	268.5	40	Moscow, Popoff RV58 (Russia)	
1083	277	60	Oslo (Norway)	
1071	280	85	Tiflis, RV7 (Russia)	
1035	290	36	Kiev, RV9 (Russia)	
1000	300	100	Moscow (Russia)	
938	320	20	Kharkov, RV4 (Russia)	
857	350	100	Leningrad (Russia)	
840	357	18.5	Budapest (Hungary)	
825	363.6	50	Sverdlovsk, RV5 (Russia)	
770	389	0.6	Ostersund (Sweden). (*Relays Stockholm*)	
760	395	1.3	Geneva (Switzerland). (*Relays Sottens*)	
720	416.6	20	Moscow, RV2 (Experimental) (Russia)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)	
680	441.2	0.6	Lausanne (Switzerland). (*Relays Sottens*)	
574.7	522	0.7	Hamar (Norway). (*Relays Oslo*)	
574.7	522	7	Ljubljana (Yugoslavia)	
569	527	0.25	Freiburg-im-Breisgau (Germany). (*Relay Stn.*)	
568.1	528	2	Grenoble (France)	
566	530	0.25	Hanover (Germany). (*Relays Hamburg*)	
563	533	16	Wilno (Poland). (*Relay Station*)	
560	536	0.25	Augsburg (Germany). (*Relays Munich*)	
560	536	1.5	Kaiserslauten (Germany). (*Relays Munich*)	
558.6	537	1	Tampere (Finland). (*Relays Helsinki*)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	
542	554	10	Sundsvall (Sweden). (*Relays Stockholm*)	
537.6	558	3	Palermo (Italy)	
533	563	60	Munich (Germany)	
525	571	15	Riga (Latvia)	
517	580	15	Vienna (Rosenhügen) (Austria)	
509	589	15	Brussels No. 1, Velthem (Belgium). (*In French*)	
500.8	599	20	Florence, IFI (Italy). (*Relays Turin*)	
495.8	605	1.2	Trondheim (Norway)	
488.6	614	120	Prague, No. 1 (Czechoslovakia)	
480	625	50	North Regional (Manchester)	
472.4	635	60	Langenberg (Germany)	
467	642	0.4	Aalesund (Norway)	
465.8	644	1.5	Lyons la Doua, PTT (France)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (*relays Heilsberg*); Klagenfurt (0.5 kW.) (Austria) (*relays Vienna*); Porsgrund (0.7 kW.) (*relays Oslo*), Tromsö (0.1 kW.) Bodö (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (*relays Stockholm*).	
453.2	662	0.25	Agen (France)	
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Rjukan (0.15 kW.), Notodden (0.08 kW.) (Norway) (*relays Oslo*).	
441.2	680	50	Rome, IRO. (*S.-W. Station*, 2 *RO on* 25.4 *m.*)	
435.4	689	55	Stockholm, SASA (Sweden)	
430.4	697	2.5	Belgrade (Yugoslavia)	
424.3	707	2	Madrid, EAJ7 (Union Radio). (*After* 7.0 *p.m.*)	
424.3	707	100	Moscow, Imini Stalina (Russia)	
419.5	715	1.5	Berlin, No. 1, Witzleben (Germany)	
416.4	720.5	5	Rabat (Morocco)	
413	725	60	Athlone (Irish Free State)	
408.7	734	16	Katowitz (Poland)	
403.8	743	25	Sottens (Radio Suisse Romande) (*Switzerland*)	
398.9	752	25	Midland Regional	
394.2	761	12	Bucharest (Roumania)	
389.6	770	120	Leipzig (Germany)	
385.1	779	8	Toulouse (Radiophonie du Midi) (France)	
385.1	779	10	Stalino, RV26 (Russia)	
381	788	16	Lwow (Lemburg) (Poland)	
376.4	797	50	Scottish Regional (Falkirk)	
372.2	806	1.5	Hamburg (Germany)	
370.1	810.5	0.8	Radio, LL, Paris	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (*relays Lahti*); Kharkov, RV20 (10 kW.) (Russia).	
365.8	821	0.7	Fredriksstad (Norway). (*Relays Oslo*)	
364.1	824	1	Bergen (Norway)	
363.6	825	13	Algiers (Algeria)	
360.6	832	60	Mühlacker (Stuttgart) (Germany)	
355.9	843	50	London Regional (Brookmans Park)	
352.1	852	7	Graz (Austria). (*Relays Vienna*)	
348.8	860	7.6	Barcelona, EAJ1 (Spain)	
348.8	860	10	Leningrad, RV70 (Russia)	
345.2	869	11.5	Strasbourg, PTT (France)	
341.7	878	35	Brno (Brunn) (Czechoslovakia)	
338.2	887	15	Brussels II, Velthem (Belgium). (*In Flemish*)	
335	896	5	Cadiz (Spain)	
334.4	897	1.9	Poznan (Poland)	
331.5	905	50	Milan (Italy). (*Relays Turin*)	
328.2	914	60	Poste Parisien (France)	
325	923	60	Breslau (Germany)	
321.9	932	10	Göteborg (Sweden). (*Relays Stockholm*)	
318.8	941	0.25	Dresden (Germany). (*Relays Leipzig*)	
318.8	941	1.5	Naples, UNA (Italy). (*Relays Rome*)	
315.8	950	1.6	Marseilles, PTT (France)	
312.8	959	1.7	Cracow (Poland)	
312.8	959	10	Genoa, IGE (Italy). (*Relays Turin*)	
309.9	968	1	Cardiff	
307	977	0.7	Radio Vitus (Paris). (*S.-W. Stn. on* 43.75 *m.*)	
307	977	0.75	Zagreb (Yugoslavia)	
304	986	13	Bordeaux Lafayette, PTT (France)	
301.5	995	50	North National (Manchester)	
298.8	1004	11	Tallinn (Esthonia)	
296.1	1013	20	Huizen (Holland). (*After* 4.40 *p.m.*) (*Exchanges wavelengths with Hilversum every three months.*)	
293.5	1022	0.7	Limoges, PTT (France)	
293.5	1022	2.6	Kosice (Czechoslovakia)	
291	1031	10	Viipuri (Viborg) (Finland). (*Relays Helsinki*)	
288.3	1040	50	Scottish National (Falkirk)	
288.3	1040	—	British Relays (Bournemouth, Plymouth)	
286	1049	0.8	Montpellier (France)	
285.1	1052	0.7	Lyons (Radio-Lyon) (France)	

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Metres.	Kc.	kW.	Station.	Tuning Positions.
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
283.6	1058	0.5	Innsbruck (Austria). (*Relays Vienna*)	
282.2	1063	2	Lisbon CT 1AA (Portugal). (*Short-wave Station on* 31.25 *m.*)	
281.2	1067	0.75	Copenhagen (Denmark)	
278.8	1076	13.5	Bratislava (Czechoslovakia)	
276.5	1085	60	Heilsberg (Germany)	
273.7	1096	7	Turin (Italy)	
271.5	1105	1.3	Rennes, PTT (France)	
269.8	1112	20	Bari (Italy)	
269.8	1112	0.25	Bremen (Germany). (*Relays Hamburg*)	
267.6	1121	1.5	Valencia (Spain)	
265.8	1128.5	1.3	Lille, PTT (France)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
261.5	1147	50	London National (Brookmans Park)	
259.3	1157	17	Frankfurt-a.M. (Germany)	
259.3	1157	2.3	Trier (Germany). (*Relays Frankfurt*)	
257.1	1167	10	Hörby (Sweden). (*Relays Stockholm*)	
255.1	1176	0.7	Toulouse, PTT (France)	
253.1	1185	5	Gleiwitz (Germany). (*Relays Breslau*)	
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)	
249.6	1202	0.8	Juan-les-Pins, Nice (France)	
247.7	1211	10	Trieste (Italy)	
245.9	1220	0.12	Swansea	
245.9	1220		Berne (0.5kW.) (Switzerland)(*relays Beromünster*); Eskilstuna (0.2 kW.), Säffle (0.4 kW.) (Sweden) (*relays Stockholm*); Cassel (0.25 kW.) (Germany) (*relays Frankfurt*); Linz (0.5 kW.) (Austria) (*relays Vienna*); Pietarsaari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (*relays Helsinki*); Schaerbeek (0.1 kW.) (Belgium).	
244.1	1229	0.5	Basle (Switzerland). (*Relays Beromünster*)	
242.3	1238	1	Belfast (N. Ireland)	
240.6	1247	0.5	Stavanger (Norway)	
238.9	1256	2	Nürnberg (Germany). (*Relays Munich*)	
238	1260	1	Nimes (France)	
237.2	1265	3	Bordeaux, Sud-Ouest (France)	
235.5	1274	0.5	Kristiansand (Norway)	
235	1283	1.65	Lodz (Poland). (*Relay Station*)	
232.2	1292	0.25	Kiel (Germany). (*Relays Hamburg*)	
230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhätten).	
229	1310	0.5	Umea (Sweden)	
227.4	1319	0.5	Flensburg (Germany). (*Relays Hamburg*)	
225.9	1328	10	Fécamp, Radio-Normandie (France)	
224.4	1337	1	Cork (Irish Free State)	
222.9	1346	0.15	Hüdiksvall (Sweden)	
219.9	1365	1.5	Béziers (France)	
218.5	1373	0.2	Plymouth	
218.5	1373	0.5	Salzburg (Austria). (*Relays Vienna*)	
217	1382	0.5	Königsburg (East Prussia) (Germany)	
217	1382	0.25	Karlstad (Sweden)	
215.6	1391	0.1	Brussels, Radio-Chatelineau (Belgium)	
215.6	1391	0.2	Halmstad (Sweden)	
214.3	1400	1	Aberdeen	
211.3	1420	1	Newcastle	
209	1430	0.8	Magyarovar and Miskolcz (Hungary)	
207	1450	0.15	Boras (Sweden)	
206	1460	0.2	Ornsköldsvik (Sweden)	
204.1	1470	0.2	Gävle (Sweden)	
202.7	1480	0.25	Kristineham (Sweden)	
201.3	1490	0.25	Hälsingborg (Sweden)	
195	1530	0.2	Karlskrona (Sweden)	

PRINCIPAL SHORT-WAVE STATIONS.

(N.B.—Times of Transmission, given in parentheses, are approximate only and represent G.M.T.)

Metres.	Kc.	Call Sign.	Station.	Tuning Positions.
80.0	3,750	2RO	Rome	
70.2	4.273	RW15	Khabarovsk (Russia). (*Daily* 09.00–12.00)	
63.0	4.760	CT3AR	Funchal (Madeira). (*Wed.* 20.30, *Sun.* 14.30)	
62.56	4,795	VE9BY	London, Ont. (Canada). (*Sun.* 06.00)	
62.5	4.800	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 24.00)	
58.3	5.146	PMY	Bandoeng (Java). (*Daily* 12.26 *and* 07.00)	
58.0	5,172	OK1MPT	Prague (Czechoslovakia). (*Tues. and Fri.* 19.30.)	
54.52	5.502	W2XBH	Brooklyn, N.Y. (U.S.A.). (*Relays WCGU*)	
52.7	5.690	FIU1	Tananarive, P.T.T. (Madagascar)	
52.5	5.714	HCJB	Quito (Ecuador). (*Daily* 12.30)	
51.22	5,857	XDA	Chapultepec (Mexico)	
50.6	5.930	HKO	Medellin (Colombia)	
50.26	5.970	HVJ	Vatican State, Rome. (*Daily* 19.00)	
50.0	6,000	ZL3ZC	Christchurch (New Zealand). (*Wed.* 03.00, *Sat.* 07.30.)	
50.0	6,000	—	Bucharest (Roumania)	
50.0	6.000	RW59	Moscow	
50.0	6,000	EAR25	Barcelona, Radio Club (Spain). (*Sat.* 20.00)	
49.96	6,005	VE9DR	Drummondville (Canada). (*Relays CFCF*, 01.00–05.00.)	
49.96	6,005	HRB	Tegucigalpa (Honduras). (*Daily ex. Sun.* 00.00–05.00.)	
49.83	6,020	W9XF	Chicago, Ill. (U.S.A.). (*Relays WENR*)	
49.8	6.023	XEW	Mexico City (Mexico). (*Daily* 01.00)	
49.67	6,042	W2XAL	Coytesville, N.J. (U.S.A.). (*Relays WRNY*)	
49.59	6,050	VE9HX	Halifax (Nova Scotia). (*Relays CHNS*)	
49.58	6,050	GSA	Empire Broadcasting, Zones 4–5	
49.5	6,060	VQ7LO	Nairobi (Kenya Colony). (*Daily* 16.30)	
49.5	6,060	W8XAL	Mason, Ohio (U.S.A.). (*Relays WLW*)	
49.5	6,060	W3XAU	Philadelphia, Pa. (U.S.A.). (*Relays WCAU.*)	
49.43	6,069	VE9CS	Vancouver, B.C. (Canada)	
49.4	6,072	UOR2	Vienna. (*Tues.* 13.00, *Thurs.* 15.00, *Sat.* 23.00.)	
49.34	6,080	W2XCX	Kearny, N.J. (U.S.A.). (*Relays WOR*)	
49.34	6,080	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
49.22	6,095	VE9GW	Bowmanville, Ont. (Canada). (*Daily* 20.00)	
49.2	6,098	ZTJ	Johannesburg (S. Africa). (*Weekdays* 09.00, 14.00 [*Sat.* 14.30] *and* 17.00, *Sun.* 13.00 *and* 17.30.)	
49.18	6,100	W3XAL	Bound Brook, N.Y. (*Relays WJZ*)	
49.1	6,110	VUC	Calcutta, India. (*Daily* 13.00)	
49.02	6,120	W2XE	Long Island, N.Y. (U.S.A.). (*Relays WABC.*)	
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
48.8	6,147	VE9CL	Winnipeg (Canada). (*Daily ex. Sun.* 00.30)	
48.65	6,167	XIF	Mexico City (Mexico)	
48.35	6,205	HKC	Bogota (Colombia). (*Daily* 15.00)	
48.2	6,220	2RO	Rome (Italy)	
48.05	6,243	HKD	Barranquilla (Colombia). (*Weekdays* 23.45)	
48.0	6,250	CN8MC	Casablanca (Morocco). (*Relays Rabat*)	
47.0	6,382	HC1DR	Quito, Ecuador. (*Daily* 01.00)	
46.69	6,425	W3XL	Bound Brook, N.J. (U.S.A.). (*Relays WJZ irregular.*)	
46.67	6,426	VE9BY	London, Ont. (Canada). (*Sat.* 01.00 *Sun.* 02.00.)	
45.38	6,611	REN	Moscow (*Relays Trade Union Stn.*)	
45.0	6,667	FM8KR	Constantine (Algeria). (*Mon. and Fri.* 23.00.)	
45.0	6,667	TGW	Guatemala City (Central America). (*Daily* 03.00.)	
43.75	6,860	—	Radio Vitus, Paris. (*Daily* 20.30)	
43.0	6,970	EAR110	Madrid. (*Tues. and Sat.* 22.30)	
41.7	7,195	VS1AB	Singapore (Malay States). (*Sun. and Wed.* 15.30.)	
41.6	7,211	EAR58	Teneriffe (Radio Club) (Canary Islands)	
41.5	7,230	HB9D	Zurich (Radio Club) (Switzerland). (*1st and 3rd Sun.*)	
41.0	7,320	HSP2	Bangkok (Siam). (*Mon.* 14.00)	
40.3	7,443	HBQ	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.45.)	
39.7	7.556	HKF	Bogota (Colombia). (*Westinghouse Labs.*)	
39.4	7.612	X26A	Nuevo Laredo (Mexico). (*Thurs.* 16.00)	
38.7	7,797	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.45.)	
36.92	8,125	PLW	Bandoeng (Java). (*Daily* 10.00–14.00)	
34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 23.00)	
34.68	8,650	VE9BY	London, Ont. (Canada). (*Mon.* 21.00)	
33.50	8,928	TGX	Guatemala City (S. America)	
32.26	9,300	—	Rabat (Morocco). (*Sun.* 21.00)	
31.58	9,500	PRBA	Rio de Janeiro (Brazil). (*Daily* 21.30)	
31.55	9,510	VK3ME	Melbourne (Australia). (*Wed. and Sat.* 10.00.)	
31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5	
31.51	9,520	OXY	Skamlebaek (Denmark). (*Relays Copenhagen.*)	
31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.) (*Relays WGY*)	
31.38	9,560	DJA	Zeesen (Germany). (*Daily* 13.00)	
31.35	9,570	SRI	Posen (Poland). (*Tues. and Thurs.* 17.30)	
31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.). (*Relays WBZ.*)	
31.3	9,582	W3XAU	Philadelphia, Pa. (U.S.A.). (*Daily ex. Thurs. and Fri.* 21.00.)	
31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.45.)	
31.29	9,585	GSC	Empire Broadcasting, Zone 3	
31.28	9,590	VK2ME	Sydney (Australia). (*Sun.* 10.00)	
31.25	9,598	CT1AA	Lisbon (Portugal). (*Tues. and Fri.* 22.00–24.00.)	
31.10	9,640	HS2PJ	Bangkok (Siam). (*Mon.* 02.00–05.00)	
30.43	9,869	EAQ	Aranjuez (Spain). (*Daily* 23.30, *Sat.* 18.00)	
30.0	10,000	—	Belgrade (Yugoslavia). (*Mon.* 19.00)	
29.3	10,238	T14NRH	Heredia (Costa Rica). (*Daily* 22.00 *and* 02.00.)	
28.98	10,350	LSX	Buenos Aires (Argentina). (*Daily* 20.30)	
26.83	11,180	CT3AQ	Funchal (Madeira). (*Tues. and Thurs.* 10.30–12.30.)	
25.63	11,700	FYA	Pontoise (France). (*Colonial Stn. E-W, daily* 20.00.)	
25.6	11,720	VE9JR	Winnipeg (Canada). (*Daily ex. Sat. and Sun.* 17.45.)	
25.53	11,750	GSD	Empire Broadcasting, Zones 1 & 4	
25.5	11,760	XDA	Chapultepec (Mexico). (*Daily* 20.00)	
25.4	11,810	VE9GW	Bowmanville (Canada). (*Daily* 18.00)	
25.4	11,810	2RO	Prato Smeraldo, Rome. (16.00 *and* 19.30)	
25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
25.28	11,865	GSE	Empire Broadcasting, Zone 2	
25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
25.2	11,905	FYA	Pontoise (France). (*Colonial Stn. N-S*)	
23.38	12,830	—	Rabat (Morocco). (*Sun.* 11.30)	
20.5	14,630	XDA	Chapultepec (Mexico). (*Daily* 19.30)	
19.9	15,075	T14NRH	Heredia (Costa Rica). (*Sat., Sun., Mon.* 16.00 *and* 21.00.)	
19.84	15,120	HVJ	Vatican State, Rome. (*Daily* 10.00)	
19.81	15,140	GSF	Empire Broadcasting, Zone 5	
19.73	15,200	DJB	Zeesen (Germany). (*Daily* 13.00–17.00)	
19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.) (*Relays KDKA.*)	
19.68	15,244	FYA	Pontoise (France). (*Colonial Stn. E-W*)	
19.56	15,340	W2XAD	South Schenectady, N.Y. (U.S.A.) (*Daily* 18.00.)	
16.9	17.750	HSP	Bangkok (Siam). (*Sun. and Tues.* 21.00)	
16.88	17,770	GSG	Empire Broadcasting, Zone 2	
16.87	17.780	W3XAL	Bound Brook, N.J. (*Weekdays* 13.00)	
16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
14.47	20,730	LSY	Buenos Aires (Argentina). (*Sun.* 21.00)	
13.97	21,470	GSH	Empire Broadcasting, Zone 3 (*Daylight working.*)	
13.92	21,540	W8XK	East Pittsburg (*Relays KDKA.*)	

FOREIGN SUNDAY PROGRAMMES

MARCH THE NINETEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"God and the World Through Christian Eyes," by Miss Maude Royden. Orchestral concert.
LONDON REGIONAL	Roman Catholic Service from Manchester. Orchestral concert.
MIDLAND REGIONAL	Vocal and instrumental concert.
NORTH REGIONAL	Roman Catholic Service from Manchester. Brass Band.
WEST REGIONAL	Concert from the Park Hall, Cardiff.
BELFAST	Evensong from St. James's Parish Church.

ABROAD

ATHLONE	8.30 p.m. Concert from the Gaiety Theatre, Dublin.
BORDEAUX-LAFAYETTE	4.30 p.m. Pasdeloup symphony concert from Paris.
BRUSSELS (No. 1)	8.35 p.m. Operetta: "Madame Pompadour" (Fall), from Verviers.
COPENHAGEN	7 p.m. Military Band.
HAMBURG	7 p.m. The Symphony Orchestra, conducted by R. Richter.
HILVERSUM	2.10 p.m. Concert conducted by P. Monteux, from Amsterdam.
LANGENBERG	4 p.m. Choral and orchestral music.
RADIO-PARIS	7.30 p.m. Popular concert.
ROME	7.45 p.m. Operetta: "Les Brigands" (Offenbach).
STRASBOURG	7.45 p.m. Concert of Polish music.
VIENNA	6.25 p.m. Relay of the Workers' symphony concert.
WARSAW	11.15 a.m. Concert in honour of Marshal Pilsudski.

ATHLONE

413 metres; 60 kW.; and **CORK, 224.4 metres.**—**8.30 p.m.,** Time Signal. **8.32,** Concert relayed from the Gaiety Theatre. **10.0,** The Adventures of Ellis Palmer, presented by I. P. Mitchell and Company. **10.45,** Variety Music on Gramophone Records. **11.0,** Time Signal, News, Weather and Close Down.

BARCELONA

RADIO-BARCELONA; Call EAJ1; 348.8 metres; 8 kW.—**11.0 a.m.,** Chimes from the Cathedral, and Weather Forecast. **1.0 p.m.,** Light Music on Gramophone Records. **1.30** (in an interval), Theatre Notes. **2.0,** Film Review, followed by Concert by the Station Sextet. **3.0,** Programme for Hospitals and other Benevolent Institutions, with Gramophone Records. **4.0 to 5.30,** Interval. **5.30,** Popular Music on Gramophone Records. **6.0,** Agricultural Talk in Catalan. **6.15,** Dance Music from the Hotel Ritz. **7.45,** Concert by the Station Orchestra. Soloists: Margarita Romero (Soprano) and Ramon Aliaga (Bass). **9.0,** An Opera, on Gramophone Records. **10.45,** Chess Lesson. **11.0** (approx.), Close Down.

BARI

270 metres; 20 kW.—**9.45 a.m.,** Agricultural Report. **10.5,** Sacred Music. **10.30,** Talk and Bible Reading. **12 Noon,** Giornale Radio. **12.10 to 1.15 p.m.,** Variety Music on Gramophone Records. In the intervals at **12.55,** Weather, and at **1.0,** Time and Announcements. **4.30 to 5.30,** Popular Music on Gramophone Records. **7.0,** Sports Notes and Giornale Radio. **7.30,** Time and Announcements. **7.35,** Variety Concert. In the Interval, Notes on Art. **9.30,** Dance Music from the Grand Hotel Moderno. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**10.30 a.m. to 12 Noon,** See **Leipzig.** In the interval at **11.55,** Time Signal. **12 Noon,** See **Hamburg.** **1.0 p.m.,** Talk for Parents. **1.30,** Programme for Children. **2.0,** Talk by Flight-Captain Merz: With the Do-X across the Atlantic. **2.30,** Max Kretzer reads from his own Works. **2.50,** Quartet for Flute, Guitar, Viola and 'Cello (Schubert). **3.20,** Talk: Art Centres and Art Treasures of the Nation—Frederick the Great as a Collector. **3.45,** Concert from **Heilsberg.** **4.30,** Programme in Memory of Max Reger: Introductory Talk; Songs; Flute Trio in G, Op. 141a. **5.35,** Talk on Winter Relief. **6.0 to 7.40,** See **Heilsberg.** **7.40,** Concert from **Langenberg.** **9.0** (approx.), Weather, News and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Dance Music from **Berlin (Witzleben).** **11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**10.30 a.m.,** See **Leipzig.** **11.55,** Radio Report on the Commercial Clerk's Vocational Difficulties. **12.10 p.m.,** Concert from **Leipzig.** **12.45,** Gymnastics Contest, Berlin-Hamburg-Leipzig, relayed from the Schauspielhaus. **1.0,** Talk for Parents. **1.30,** Fairy Tales for Children. **2.0,** May we advise You?—Anwers to Listeners' Questions on Various Subjects. **2.15,** At the Grave of Frederick the Great. **2.40,** Concert of Light Music. In the interval at **3.0,** Topical Talk. **4.35,** Talk: The World at the Turning Point?—National Art. **5.0,** Chamber Music Concert from Monbijou Castle. Conductor and Soloist: Edwin Fischer (Pianoforte). Concerto in F Minor for Pianoforte and String Orchestra (Bach); Concerto in D Minor for Two Violins and String Orchestra (Bach); Three Arias for Contralto: (a) Come raggio di sol (Antonio Caldara), (b) Agnus dei, (c) Aria from Julius Caesar (Händel); Concerto in D Minor for String Orchestra (Vivaldi, arr. Sam Franko). **6.20,** A Variety Programme. **7.10,** Sports Notes. **7.15,** Announcement. **7.20,** Concert by the German Symphonic Wind Orchestra, conducted by Arthur Jander. **7.55,** Report on International Affairs. **8.15,** Concert (contd.). **9.0,** Weather, News and Sports Notes, followed by Dance Music. **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

279 metres; 14 kW.—**3.0 p.m.** Orchestral Concert. **4.30,** Provincial Programme from Spisska Nová Ves, relayed from **Kosice, 293 metres.** **6.0,** See **Brno.** **6.40,** Slovak Music and Songs for Bagpipes, Two Violins and 'Cello. **7.20,** Talk. **7.35,** Popular Music on Gramophone Records. **7.50,** See **Prague.** **8.5,** Variety Music on Gramophone Records. **8.10,** Symphony Concert from Spisska Nova Ves, relayed from **Kosice.** **9.0,** See **Prague.** **10.0** (approx.) Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.**—**10.30 a.m.,** See **Leipzig.** **1.0 p.m.,** News Bulletin. **1.10,** Talk: Rowing as a Popular Sport in Germany. **2.15,** Talk: Albrecht von Hangwitz. **2.30,** Programme for Children. **3.0,** Talk: The English Disarmament Policy. **3.30,** Sports Results. **4.5,** Concert conducted by Franz Marszalek. **5.55,** Sports Notes. **6.0,** Humorous Readings (Fritz Reuter). **6.30,** Weather for Farmers. **6.32,** Max Reger Concert on the Sixtieth Anniversary of the Composer's Birth: Serenade in D for Flute, Violin and Viola, Op. 77; Andante semplice con variazoni; Aus meinem Tagebuch—Pieces for Pianoforte. **7.0,** Annaberg—Radio Play (Kurt Eggers) on the Twelfth Anniversary of the Upper Silesian Plebiscite. **8.25,** News Bulletin. **8.35,** Rilke-Kreis—for Mezzo-Soprano, two Flutes, two Violas and two 'Cellos (Karl Marx), conducted by the Composer: Rilke Kreis, Op. 8, from Early Poems of Rainer Maria Rilke: (a) Vor lauter Lauschen und Stannen sei still, (b) Du musst das Leben nicht verstehen, (c) Ich will nicht langen nach dem lanten Leben, (d) Gehst du aussen die Mauern entlang, (e) Träume, die in Deinen Tiefen wallen; The New Rilke-Kreis, Op. 17—from Rilke's Buch der Bilder: (a) Eingang, (b) Bangnis, (c) Herbst, (d) Vergefühl, (e) Abend. **9.10,** Time and News. **9.35,** Gramophone Report from the Upper Silesian Patriots Demonstration in the Schiesswerdersaal. **10.20,** Dance Music from **Berlin (Witzleben).** **11.0** (approx.), Close Down.

BRNO

342 metres; 25 kW.—**10.30 a.m.,** Concert by the Station Orchestra, conducted by B. Bakala. **11.0,** See **Prague.** **1.0 to 1.15,** Agricultural Talk. **2.30,** See **Prague.** **3.0,** See **Bratislava.** **4.30,** Pianoforte Recital by Anna Skalicka. **5.0 to 5.45,** Two Sonatas for Violin and Pianoforte: (a) Sonata (Mozart), (b) Sonata in C Minor, Op. 30, No. 2 (Beethoven). **6.0,** Variety Programme. **6.40,** Popular Concert by the Radio Schrammel Quartet. **7.20,** Concert of Russian Music. **7.50,** See **Prague.** **8.5,** See **Moravská-Ostrava.** **9.0,** See **Prague.** **10.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R.; 509 metres; 15 kW.—**10.0 a.m.,** César Franck Pianoforte Recital, on Gramophone Records. **10.30,** L. Devocht Concert by the New Concert Society and the Cecilia Choir, relayed from **Antwerp.** Conductor, The Composer. Soloist, Mia Peltenburg (Songs). **12.30 p.m.,** Variety Music on Gramophone Records. **1.0,** Le Journal Parlé. **1.10,** Concert by Mickey's Club Jazz Attraction. **1.30,** Sketch. **1.40,** Concert (contd.). **5.0,** Mozart Concert by the Symphony Orchestra, conducted by Kumps: Symphony in E Flat: Dorfomusikanter; Overture, Il Seraglio. In the interval at **5.30** (approx.), Football Results. **6.0,** Gramophone Concert of Popular Music. **6.30,** Programme for Children. **7.0,** Organ Recital by Louis Joos, relayed from the Carmelite Church. **7.15,** Religious Address. **7.30,** Wireless Notes and Music Review. **8.0,** Light Music on Gramophone Records. **8.30,** Reading of Poems dedicated to Wine. **8.35,** Madame Pompadour—Operetta (Fall), relayed from the Grand Theatre, Verviers. **9.35,** Dance Music on Gramophone Records. **9.50,** Madame Pompadour (contd.). **10.50,** Le Journal Parlé. **11.0,** Dance Music on Gramophone Records. **11.10,** Madame Pompadour (contd.). **11.45,** Dance Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 338.2 metres; 15 kW.—Programme in **Flemish.**—**10.0 a.m.,** Concert by the Conservatoire Concert Society, relayed from Ghent. Conductor: Martin Lunssens; Soloist: Van Macle (Violin). **12 Noon,** Concert by Mickey's Club Jazz Attraction, conducted by Ludo Langlois. **1.0 p.m.,** Journal Parlé. **1.10,** Gramophone Concert. **5.0,** Wembley Military Tattoo on Gramophone Records. **5.15,** Sports Notes. **5.20,** Gramophone Concert of Classical Music. **6.10,** Song Recital by Mlle. Ria Lenssens. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans. **7.15,** Religious Address. **7.30,** Talk on Music. **8.0,** Concert by the Symphony Orchestra, conducted by Jean Kumps. Soloists: Hélène Dinsart (Pianoforte) and Mme. Minne-Verhoeven. First Symphony (Beethoven); Concerto No. 5 for Pianoforte (Saint-Saëns). **9.0,** Concert (contd.): Extract from La mort (Du Bois); Three Russian Songs; Meurtri est mon coeur (De Greef); Le duc d'Albe (De Greef); Three Flemish Songs; Carnaval from Princesse d'Auberge (Blockx). In the interval at **8.45,** Recitations. **10.0,** Journal Parlé. **10.10,** Gramophone Concert of Popular Music. **11.0,** Concert by the Pingouin Circle. **12 Midnight** (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—**9.15 a.m.,** Programme for Children. **9.30,** Bible Reading. **9.45,** Choral Concert of Sacred Music. **10.0,** Concert by the Dumitresco Orchestra. **11.0,** Gramophone Concert of Popular Music. In the interval at **11.45,** News and Time Signal. **4.0 p.m.,** Light Music and Romanian Music by the Marco Orchestra. **5.0,** News and Time Signal. **5.10,** Talk. **5.25,** Concert (contd.). **6.0,** Talk: The Future of Romanian Culture. **6.40,** Light Music on Gramophone Records. **7.0,** Dramatic Programme. **8.0,** Choral Concert. **8.45, News.**

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on **840 metres** from **7.0 p.m.** till Close Down.—**10.0 a.m.,** Sacred Music and Address, followed by Time, Weather, Tides Report, and Concert by the Budapest Concert Orchestra. **1.0 p.m.,** Gramophone Concert of Popular Music. **2.0,** Agricultural Talk. **2.45,** Educational Programme. **3.30,** News, followed by Military Music, with Commentary. **4.45,** Concert from the Academy of Music. **6.45,** Sports Notes and Racing Results. **7.0,** Hungarian Folk Songs, with Cigány Band Accompaniment. **8.0,** Concert of Jazz and Cigány Music with Songs, relayed from the Café Ostende. **9.20,** Time and Sports Notes. **9.30,** Scandinavian Concert, conducted by Ernst Dohnanyi. Soloist: Emil Frey (Pianoforte). Symphony (Berwald); Pianoforte Concerto in A (Grieg); Carnaval à Paris (Svendsen); Second Peer Gynt Suite (Grieg).

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Time Signal and Chimes from the Town Hall. **11.2,** Orchestral Concert, conducted by Launy Gröndahl, relayed from the Axelborg Studio. **12 Noon,** Talk in English: The Grand Tour of England. **12.30 p.m.,** Talks and Readings in German: The Works of Clara Viebig. **12.40,** Reading in French. **1.25,** Variety Music on Gramophone Records. **1.55,** Programme for Children. **2.25,** Orchestral Concert relayed from the Axelborg Studio; Conductor, Fritz Mahler; Soloist, Mary Alice Therp and Marius Jacobsen (Songs): Overture, The Merry Wives of Windsor (Nicolai); Waltz, Tales from the Vienna Woods (Joh. Strauss); Ballet Music in G from Rosamund (Schubert); Overture, Die Fledermaus (Joh. Strauss); Two Arias from La belle Hélène (Offenbach); Arias from Die Fledermaus (Joh. Strauss): (a) Rosalinde's Aria from Act. I, (b) Duet of Alfred and Rosalinde; Waltz, Roses from the South (Joh. Strauss); Pizzicato Polka (Joh. Strauss); Overture, Orpheus in the Underworld (Offenbach-Binder). **4.0** (also relayed by **Skamleback** on **31.38 metres**), Divine Service, relayed from the Castle Church, Christiansborg. **5.20,** Talk for Workers. **5.50,** Weather. **6.0,** News. **6.15,** Time and Sports Notes. **6.30,** Talk: A Child's Pereeption of the World. **7.0,** Time Signal from the Town Hall. **7.1,** Military Band Concert. **7.30,** The Hensen Family—Sketch (Jens Locher). **7.45,** Military Band Concert (contd.). **8.15,** Reading. **8.35,** Military Band Concert (contd.). **9.5,** News. **9.15,** Songs by Alfred Piccaver on Gramophone Records. **9.30,** Military Band Concert (contd.). **10.0,** Dance Music by the Teddy Petersen Band, relayed from the Restaurant Wivex. In an interval at **11.0,** Time Signal and Chimes from the Town Hall. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**4.0 to 8.0 p.m.,** Programme in English by the I.B.C. C. Danvers-Walker, B. McNabb and F. Lamping announcing. **4.0,** Programme for Children. **4.30,** Children's Club Concert. **5.0,** International Broadcasting Club Concert for Newcastle Listeners: Ben Hur March; By the Swanee River; Message from Captain Leonard Plugge, President and Founder of the Club; The Bandmaster March; Duet: Leave the Pretty Girls Alone; Pomp and Circumstance; A Merry Hunting Day; Cinderella's Wedding Day; Duet: Don't marry a Widow; Waltz, Gold and Silver (Lehar); Hands across the Sea; Selection from The Merry Widow (Lehár); I don't want to go to bed; Cadet March. **6.0,** Military Band Concert: War March of the Priests, from Athalie (Mendelssohn); By the Blue Hawaiian Waters (Ketelbey); Coronation March; Selection from Cavalcade (Coward); The Entry of the Gladiators (Fucik); The Changing of the Guard; March from Tannhäuser (Wagner). **6.30,** Orchestral and Vocal Concert: Waltz, O Frühling wie bist du so schön (Lincke); Patiently Smiling, from The Land of Smiles (Lehár); Songs of Araby (Clay); Sari Waltz (Kálmán); The Rose-beetle goes a-wooing (Armandola); Songs my Mother taught me (Dvorak); You are my Heart's Delight (Lehár); The Dancing Doll (Poldini). **7.0,** Popular Concert on Gramophone Records: Song of the Highway, by Gracie Fields; Old King Cole, by the Western Brothers; Blonde Women, by Marlene Dietrich; I travel the Road, by Peter Dawson; Do Daddy, by Harry Hemsley and Emmie Joyce; Goodnight, by Jeanette Macdonald; Pianoforte Solo:

She didn't say Yes, by Edith Baker; After the Ball, by Bertha Wilmott. **7.30,** Organ Recital: Overture, Poet and Peasant (Suppé); To a Wild Rose (Macdowell); Spirit of America (Gamecnik); Menuet antique (Watling); Le Cygne (Saint-Saëns); Bells across the Meadow (Ketelbey); La Serenata (Braga). **8.0,** Concert of Opera and Operetta Music. **9.0** till Close Down, Programme in English by the I.B.C.: An International Orchestral Half-Hour: Sunday on the Rhine (Schumann); Spanish Serenade (Herbert); Chinese Serenade (Herbert); Souvenir de Capri (Becce); In the Sudan (Sebek); Memories of Paris (Moretti); Cuban Serenade (Herbert); Oriental Serenade (Herbert); Argentina Amor (Blum); Waltz, The Blue Danube (Joh. Strauss). **9.30,** Concert of Light Music: By the Swanee River (Myddleton); Soprano Solo: Down in the Forest (Landon Ronald); Pianoforte Solo: Popular Melodies; Bass Solo: The Mighty Deep (Jude); Gipsy Moon (Borganov); Selection from Patience (Sullivan). **10.0,** Tango Band: Te fuiste ja ja; La Paloma; Adios Argentina; Tesoro mio; Corazon; Plegaria; Todavia; Madrid. **10.30,** Concert of Popular Music: The Japanese Sandman; Young and Healthy; Well, Well, Well; Drifting and Dreaming; Zigeuner, you have stolen my Heart; Old Father Thames; It's Winter again; Selection from Wild Violets (Stolz). **11.0,** Vocal Trios: Selection from Song of the West; Blondy; To-day's a Sunny Day; Selection from The Love Parade; If I had a Girl like you; Louise. **11.30,** Hawaiian Band Concert: On a little Street in Honolulu (Sherman); Serenata (Toselli); Palikiko Blues (Traditional); Speak to me of love (Lenoir); Somehow (Hackforth); Lazy Louisiana Moon (Donaldson); Manila Moon (Gaston); Silv'ry Moon (Frazzini). **12 Midnight,** International Broadcasting Club Concert for Newcastle Listeners: Ben Hur March; By the Swanee River; Message from Captain Leonard Plugge, President and Founder of the Club; The Bandmaster March; Duet, Leave the Pretty Girls Alone; Pomp and Circumstance; A Merry Hunting Day; Cinderella's Wedding Day; Duet: Don't Marry a Widow; Waltz, Gold and Silver; Hands across the Sea; Selection from The Merry Widow (Lehár); I don't want to go to bed; Cadet March. **1.0 a.m. (Monday),** Variety Programme: A Highland Sing-Song; Rabbits; I lift up my Finger and I say "Tweet Tweet"; The Lodger; The Cruel World; What is Home without Mother?; Tesoro Mio. **1.30,** Songs: Ah, Sweet Mystery of Life; I bring a Love Song; The Song of Songs; African Lament; You are my Heart's Delight; You will remember Vienna; Just two Hearts and a Waltz Refrain; Mama Inez. **2.0,** Light Music: So ashamed; Open up dem pearly Gates; Southern Serenade; Sailin' on the Robert E. Lee; The London Fire Brigade; Rock your Cares away; A Bedtime Story; Nightfall; How deep is the Ocean?; Please, Mr. Hemingway; Just because you're you; I guess I'll have to change my Plans; Wanderer; I don't want to go to bed. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW.: **CASSEL, 245.9 metres;** and **TRIER, 259.3 metres.—10.30 a.m.,** See **Leipzig. 11.0,** See **Munich. 12 Noon,** See **Langenberg. 1.0 p.m.,** Talks arranged by the Wiesbaden Board of Agriculture. **1.10,** Rural Programme: Two Talks. **2.0,** See **Stuttgart. 3.0,** Concert from the Kurhaus, Wiesbaden. Conductor, Herbert Albert. Festmarsch (R. Strauss); Overture, Le Corsaire (Berlioz); Ballet Music from Rosamunde (Schubert); Selection from Sylvia (Delibes); Waltz, Seid umschlungen Millionen (Joh. Strauss); Selection from The Bartered Bride (Smetana); Overture, Prince Methuselah (Joh. Strauss); Selection from Paganini (Lehar). **5.0,** Talk: The Little-known parts of the Eifel. **5.25,** An Interlude. **5.55,** Talk: What is there behind the new word Technocracy? **6.20,** Sports Notes. **6.30,** Gramophone Records: Concerto in A Minor for Four Pianofortes and String Orchestra (Vivaldi-Bach); Suite in B Minor, No. 2 (Bach). **7.15 to 9.10,** See **Stuttgart. 9.10,** Time and News. **9.35,** See **Breslau. 9.45** (approx.), Programme from **Langenberg. 11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.—10.30 a.m.,** See **Loipzig. 11.0,** Young Poets from Central Germany—Reading of Verse by Rudolf Habetin and Hans Eich. **11.15,** Vital Energy—a Radio Play (Giese, Music by Ernst Koster). **11.55,** Time and Weather **12 Noon,** Military Band Concert from the Ufa Palast. **1.0 p.m.,** Programme by the Hamburg Group of the League of the Grieux. **2.0,** Programme for Children. **2.30,** Mandoline Concert. **3.0,** See **Berlin (Witzleben). 4.0,** We want to help—A Cabaret Programme. **5.10,** Reading from the Works of Hans Friedrich Blunck. **5.30** (from **Kiel**), Recital of Reger's Early Music, with Introductory Talk. **6.30,** Talk: The Development of the Collapsible Boat Sport in North Germany. **6.40,** Sports Notes. **6.55,** Weather Report. **7.0,** Concert of German Music by the Hamburg Philharmonic Orchestra, relayed from the Musikhalle; Conductor, Richard Richter; Soloist, Lisa Jungkind (Songs); The Brandenburg Concerto in G, No. 7 (Bach); Aria from Der Schauspieldirektor (Mozart); Arioso for String Orchestra (Handel); Movement in G from Rosamund (Schubert); Overture, Egmont (Beethoven); Overture, The Merry Wives of Windsor (Nicolai); Agatha's Aria from Der Freischütz (Weber); Siegfried's Rhine Journey from The Twilight of the Gods (Wagner); Two Army Marches. First General News in the Interval. **9.0,** News Bulletin. **9.10,** Topical Talk. **9.20,** Dance Music from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW.; and **DANZIG, 453.2 metres.—11.0 a.m.,** See **Leipzig. 1.0 p.m.,** Talk on Chess. **1.30,** Tales for Young People. **2.0,** Agricultural Report from the Auktionshalle, Insterburg. **2.20** (from **Elbing**), Mandoline and Balalaika Concert. **3.20,** Sports Notes. **3.30,** Concert by the Königsberg Opera House Orchestra, conducted by Werner Franz. **5.0,** Talk: The Care and Protection of Birds in the Spring. **5.30,** Reading from the Works of Reinhard Braun. **6.0,** Hermann von Balcke—Pasticcio—Opera (Handel), written in 1737 for the Fifth Centenary of the Town of Elbing, relayed from the Königsberg Castle. **7.0,** Elbing—A Picture of a German Town (arr. Ernst Freissler). **7.40,** Concert from **Langenberg. 9.15** (approx.), News and Sports Notes, followed by Dance Music from **Berlin (Witzleben). 11.0 (approx.),** Close Down.

HILVERSUM

(Announced **HUIZEN**); **296.1 metres;** 20 kW (7 kW up to **4.40 p.m.**).—**9.30 a.m.,** Programme of the Christian Radio Society (N.C.R.V.): Divine Service Relay and Organ Recital. **11.55 to 4.40 p.m.,** Programme of the Catholic Radio Society (K.R.O). **11.55,** Concert. In the interval at **12.40,** Talk. **1.20** (approx.), Talk: The Agricultural Crisis. **1.40,** Choral and Orchestral Concert. **4.10,** Programme for Invalids. **4.40 to 7.25,** N.C.R.V. Programme. **4.40,** Sacred Music on Gramophone Records. **5.30,** Divine Service, relayed from **Nijmegen. 6.55,** Organ Recital by Simon Kleinloch: Sonata No. 3 (Mendelssohn); Choral and Variation on Vater unser im Himmelreich (Mendelssohn); Prelude (C. Franck); Toccata and Fugue (Brandts-Buys); Improvisation on an Evangelical Hymn (Kleinloch). **7.25** till Close Down, K.R.O. Programme. **7.25,** Talk on Architecture. **7.50,** Football Results. **7.55,** A Radio Play. In the interval, News. **9.25,** Orchestral Concert: Soloist: Mlle. M. Vroemen (Soprano); Overture, The Ruins of Athens (Beethoven); Song, Bella mia fiamma addio (Mozart); Bacchanale from Samson and Delilah (Saint-Saëns); Selection from L'Enfant prodigue (Debussy); Eight Popular Russian Songs, Op. 58 (Liadov). In the interval at **9.55,** News. **10.20,** Epilogue by the Little Choir, conducted by J. H. Pickkers. **10.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres;** 8.5 kW.—**11.40 a.m. to 4.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.40,** Time Signal. **11.41,** Talk. **12.10 p.m.,** Concert of Light Music by Kovacs Lajos and his Orchestra, with Songs by Bob Scholte, and Interlude by a Male Voice Choir. **1.40,** Weekly Book Talk. **2.10,** Concert by the Concertgebouw Orchestra, conducted by Pierre Monteux, relayed from the Concertgebouw, **Amsterdam.** Soloist: Gino Francescatti (Violin). **3.40,** Talk: The Forthcoming Studio Performance of Galsworthy's Play, Justice. **4.10,** Popular Music on Gramophone Records and Sports Notes. **4.40 to 7.40,** Programme of the Workers' Radio Society (V.A.R.A.). **4.40,** Programme for Children. **5.40,** Concert by the V.A.R.A.; Children's Choir conducted by Mlle. L. Hulscher. **6.10,** Organ Recital by Johan Jong. **6.30,** The Adventures of Messrs. Wakker and Tropenduit. **6.50,** Concert by De Fliereffluiters, conducted by Hugo de Groot. **7.40 to 11.40,** A.V.R.O. Programme. **7.40,** Time Signal. **7.41,** Sports Notes and News. **7.55,** Concert by the Wireless Orchestra, conducted by Albert van Raalte. Soloists: Henriette Sala (Soprano) and Henk Viskil (Tenor). **8.40,** Recitations. **9.0,** Concert (contd.). **10.10,** Concert of Light Music by Cornelius Codolban and his Orchestra. **10.40,** Light Music on Gramophone Records. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

473 metres; 60 kW.—**10.30 a.m.,** See **Leipzig. 11.5,** Relay from the East Prussian Demonstration in the Town Hall, Hagen. **11.50,** Talk: The Music of the Week. **12 Noon,** Concert, conducted by Eysoldt. **1.30,** Shorthand Dictation. **1.50,** Chess Lesson. **2.20,** Talk: Rare Plants Native to Germany. **2.45,** Talk: Town and Country in West and South Germany. **3.10,** Legends and Tales of Rhineland and Westphalia—St. Albans and St. Bardo. **4.0,** Choral and Orchestral Concert. **5.0,** Talk: People of the Mountains. **5.15,** Talk on Ernst Moritz Arndt. **5.35,** Talk: Instinct and Intellect in the Works of Shakespeare. **6.0,** Variety Programme. **6.45,** Sports Notes. **7.0,** Concert of Dances and Marches by the Station Orchestra, conducted by Kühn. **9.5,** News and Sports Notes. **9.30,** Concert and Dance Music conducted by Eysoldt. **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN, 319 metres.—10.30 a.m.,** Sehet, wir geh'n hinauf gen Jerusalem—Cantata (Bach) by the Gewandhaus Orchestra, the Choir of St. Thomas's, and Solosts. **11.0,** Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer; Soloist, Walter Schulz ('Cello). **11.55** (in the interval). Talk on Josef Hoffmann. **1.0 p.m.,** Weather and Time. **1.5,** Programme Announcements. **1.25,** Agricultural Notes. **1.40,** Suite for Two Violins and Pianoforte (Ries-Sitt). **2.15,** Adolf von Hatzfeld reads from his own Works. **2.30,** Trio in E Flat, Op. 40, for Pianoforte, Violin, and French Horn (Brahms). **3.5,** From Bagpipes to Aether Wave Music. Talk with Gramophone Illustrations. **4.0,** Mandoline Concert, relayed from **Bitterfeld. 5.0,** Talk: The Crocuses are blooming—Spring in the Erzgebirge. **5.15,** Blitzlicht auf Szene 13—a Moral Play on the Evil of Slander, arranged from Moidi Joki's Film, followed by Dialogue between the Film Director and Dr. Hans Vogel. **6.0,** Radio Reports: (a) Relay from the Fiftieth Anniversary Celebrations of the German Rowing Club's Association, (b) Part Relay of the International Football Match, Germany versus France, from **Berlin. 6.50,** Topical Talk. **7.0,** See **Heilsberg. 7.30,** See **Vienna. 9.5,** News Bulletin. **9.20** (approx.), Dance Music. **11.0** (approx.), Close Down.

LINZ.—See **Vienna.**

LWOW

381 metres; 16 kW.—**6.5 p.m.,** Miscellaneous Items. **6.25,** See **Warsaw. 8.20,** Sports Notes. **8.30,** See **Warsaw. 11.0** (approx.), Close Down.

MADRID

ARANJUEZ (EAQ); 30.43 metres; 20 kW.—**10.30 p.m.,** Variety Music. **10.45,** Humorous Talk. **11.0,** Variety Music (contd.). **11.35,** Talk. **11.40,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—**8.0 to 9.0 a.m.,** Topical Review. **2.0 p.m.,** Chimes, Time, Theatre Notes, and Concert by the Artys Orchestra. **4.0 to 7.0,** Interval. **7.0,** Chimes and Dance Music relayed from the Ritz Hotel. In the interval at **7.30,** Agricultural Talk. **8.30 to 9.30,** Interval. **9.30,** Chimes and Time Signal. **9.35,** Soprano and Baritone Song Recital by Luisa Nere and Franco Mar, followed by Interlude by Ramon Gomez de la Serna. Argentine Songs by Angel las Heras, and Pipo and Pipa before the Microphone. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**6.0 p.m.,** See **Brno. 6.40,** See **Prague. 8.5,** Military Band Concert, conducted by V. Karel. **9.0,** See **Prague. 10.0** (approx.), Close Down.

MOSCOW

TRADES UNION; 1,304 metres; 100 kW.—**4.30 p.m.,** Literary Programme. **5.30,** Concert relayed from the Conservatorie. **8.0,** Talk in English: The Work of a Printer.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaisersfautern, 560 metres;** and **Nürnberg, 239 metres.—10.30 a.m.,** See **Leipzig. 11.0,** Concert conducted by Erich Kloss. **12.5 p.m.,** Time, Weather and Programme Announcements. **12.15,** Agricultural Talk. **12.35,** Gramophone Concert of Classical Music. **1.30,** Elementary Chess Lesson. **2.10** (from **Nürnberg**), Hymnus (Heinz Schubert), for Soprano, Mixed Choir, Orchestra and Organ. **2.50,** Report on the Spring Grand Prix, relayed from Dagling. **3.10,** Concert by the Rasso Randolf-Mutzbauer Orchestra. **4.25,** Travel Talk: From the Kochelsee to the Chiemsee. **4.45,** The Old Scoundrel—Comedy in Three Acts (von Harsanyi). **6.15,** Weather and Sports Notes. **6.25,** Talk by Paul König, the U Boat Captain: With German Country People in the United States of America. **6.55,** Orchestral Concert, conducted by Karl List. Soloist: Irene Ziegler (Contralto). **8.30,** A Short Italian Journey—Musical and Literary Sequence (Weninger). **9.20,** Time, Weather, News and Sports Notes. **9.45,** Concert from **Langenberg. 11.0** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres;** and **Rjukan, 447.1 metres.—9.20 a.m.,** Chimes and Divine Service, relayed from the Fagerborg Church. **12 Noon,** Skiing Competition Results. **4.0,** Concert by the Station Orchestra, conducted by Hugo Kramm. **5.0,** Reading. **5.30,** Talk. **6.0,** Parliamentary Notes. **6.15,** Weather and News. **6.30,** 'Cello and Song Recital by Karl Andersen ('Cello) and Sigurd Hoff (Tenor). **7.0,** Time Signal. **7.1,** Choral Concert for the Seventy-fifth Anniversary of the Nydalen Choir, relayed from the Logen Hall. Soloists: Theodor Andresen (Tenor), Oivind Fjelstad (Violin), Arne Melsom ('Cello), and Waldemar Aime (Pianoforte). **8.40,** Weather and News. **9.0,** Topical Talk. **9.45,** Variety Music on Gramophone Records. **11.0** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

542 metres; 3 kW.—**9.25 a.m.,** Bible Reading. **9.40,** Sacred Music. **10.5,** Talk. **11.45,** Giornale Radio. **12 Noon,** Concert by the Sunny Band Quartet. **12.30** (in an interval), Time Signal, Announcements, and Weather Forecast. **4.30 to 5.30,** Variety Music. **7.0,** Dopolavoro Notes and Giornale Radio. **7.20,** Sports Notes. **7.30,** Time Signal and Announcements. **7.45,** Symphony Concert, conducted by Armando la Rosa Parodi. Soloist: Maria Castelnuovo Tedesco (Pianoforte). Overture, Bisbetica domata (Castelnuovo Tedesco); Concerto for Pianoforte and Orchestra (Castelnuovo Tedesco), with the Composer at the Pianoforte; Pianoforte Solo: Viennese Rhapsody (Castelnuovo Tedesco); Three Symphonic Sketches, La Mer (Debussy). In the interval, Talk on Guiseppe Monforte, the Sicilian Poet. After the Concert, Song Recital. **9.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**12.30 p.m.,** Concert relayed from **Paris (Ecole Supérieure, 447.1 metres). 1.0 to 2.0,** Concert by the Rex Orchestra. **5.45,** Le Journal Parlé. **6.45,** Programme for Children. **7.20,** Weather Report. **7.30,** Gramophone Concert: Part I: Verdi Programme. Part II: Light Music. **9.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**9.45 a.m.,** Bible Reading. **10.0,** News. **10.5,** Sponsored Concert. **11.5,** Film Stars—Sponsored Programme. **11.40,** Sponsored Gramophone Concert. **12.15 p.m.,** Sponsored Concert. **12.45,** Half-an-Hour of Fantasy by Paul Weill. **1.15,** Interval. **1.30,** Sponsored Concert. **2.0 to 6.45,** Interval. **6.45,** Journal Parlé. **7.0,** Sports Notes. **7.15,** Popular Music on Gramophone Records. **7.30,** Catholic Review. **8.0,** Interval. **8.5,** Variety Music on Gramophone Records. **8.35,** Interval. **9.0,** Le langage des sommets—Radio Play (Carlos Larronde). **9.30,** Interval. **9.40,** Orchestral Concert: Gala March (Allier); Overture, William Tell (Rossini); Ballet Music from Les deux pigeons (Messager); Au soleil naissant (Combelle); Valse des petits oiseaux (Donard). **10.40,** News.

PARIS

RADIO PARIS; Call CFR; 1,725 metres; 75 kW.—**7.45 a.m.,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **8.30,** Physical Culture. **10.0,** Elementary Book-keeping Lesson. **10.20,** Advanced Book-keeping Lesson. **10.40,** Spanish Lesson. **11.0 to 11.30,** Interval. **11.30 to 12 Noon,** Programme in English. I.B.C. Concert of Gramophone Records. Mr. T. St. Ronald announcing: The Teddy Bear's Picnic, by the Commodore Grand Orchestra, conducted by Joseph Muscant; Little Nell—Comic Melodrama, by Bobbie Comber (Comedian); A Boy and a Girl were dancing, by Roy Smeek and his Vita Trio; Play,

Fiddle, Play, by Tom Burke; There's Something about a Soldier, from Soldiers of the King, by Jack Payne and his Band; Lily of Laguna, by Musical Dawson's Famous Choir of Canaries—Genuine Bird Singing with Orchestra; Big Hits of Big Hits, Part II, by Bob and Alf Pearson; Behold the Lord High Executioner, from the Mikado, by the Band of H.M. Welsh Guards. **12 Noon**, Religious Address. **12.20 p.m.**, Sacred Music: Basse et dessus de trompette en dialogue (Clérambault); In dulce jubilo (Buxtehude); Pastorale (Buxtehude); Toccata (Boëllmann). **12.30**, Bilboquet. **12.45**, Press Review, News, and Weather. **1.0**, Orchestral Concert of Light Music. **1.30 to 3.30**, Programme in English by the I.B.C. **1.30**, Concert of Gramophone Records. **3.0**, Orchestral Concert: March, Old Comrades (Teike); Selection from The Quaker Girl (Monckton); Selection from Gipsy Love (Lehár); Selection from The Gondoliers (Sullivan); Selection from The Desert Song (Romberg). **3.30**, Variety Concert. **4.0 to 5.0**, Programme in English by the I.B.C. Ten-time Variety Hour. Mr. S. H. C. Williams announcing. **5.0**, Third Lenten Sermon by the Reverend Father de la Boullaye, relayed from Notre Dame, Paris; Jesus the Carpenter of Nazareth. **6.30**, Variety Concert. **7.30 to 8.0**, Programme in English by the I.B.C. Film Fans' Hour. Mr. S. H. C. Williams announcing. **8.30**, News, Sports Notes, and Weather. **8.45**, Orchestral and Vocal Concert. In the interval at **9.15**, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres**.—**9.0 p.m.**, Programme to be announced. **9.30**, Vesper Services, from Shadyside Presbyterian Church. **10.30**, Pages of Romance, from **New York**. **11.0**, Sealed Power, from **New York**. **11.30**, Time Signal. **11.31**, Weather Report. **11.32**, Teaberry Sport Review. **11.37**, Press News Reeler. **11.42**, Strange Facts. **11.44**, Temperature Report. **11.45**, Don Lucas—Piano Opera. **12.0 Midnight**, Time Signal and KDKA Orchestra. **12.30 to 3.45 a.m. (Monday), New York** Relay. **12.30**, Great Moments in History. **1.0**, L'Heure Exquise. **1.30**, Mexican Symphonic Marimba Orchestra. **2.0**, Twenty Thousand Years in Sing Sing. **2.30**, Walter Winchell. **2.45**, The Pickens Sisters. **3.0**, D. W. Griffith's Hollywood. **3.15**, Lopez and the Two Doctors' Comic Congress. **3.45**, The Westinghouse Glee Club. **4.0**, Time Signal. **4.1**, Teaberry Sport Review. **4.11**, Temperature Report. **4.12**, Weather Report. **4.15**, Press Last Minute News. **4.20**, Alexander Roy (Tenor). **4.30**, Jesse Crawford (Organist), from **New York**. **5.0**, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

MARCH 19th SUNDAY *continued*

PRAGUE

488.6 metres; 120 kW.—**9.30 a.m.**, Programme in commemoration of the Gustav Habrman, the First Minister of Education in Czechoslovakia, relayed from **Pilsen**. Addresses, Programme of Music and Recitations, and Unveiling of a Memorial. **10.30**, See **Brno**. **11.0**, Chimes. **11.5**, Military Band Concert. **12.30 p.m.**, Agricultural Programme. **1.15**, Talk: Social Insurance. **2.30**, Slovak Songs by Otakar Marak (Tenor). **3.0**, See **Bratislavia**. **4.30**, Talk on Iceland. **4.45**, Light Music on Gramophone Records. **5.0**, German Transmission: Baroque Songs by Walter Kaufman and his Orchestra. Soloists: Käthe Walter and Rudol Bandler. **6.0**, See **Brno**. **6.40**, Popular Music on Gramophone Records. **7.5**, Concert by the Commercial Choral Society on the Inauguration of the Prague Sample Fair, relayed from the Smetana Hall. Conductor, B. Fromm. Soloist, J. Urbanec (Organ). **7.50**, Talk by Karl Scheinpflug. **8.0**, Time Signal. **8.1**, See **Moravská-Ostrava**. **9.0**, Time Signal. **9.1**, News Bulletin. **9.20**, Jazz on Two Pianofortes, by Ervin Schulhoff and O. Letfus. **10.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUASNNE, 680 metres**; and **GENEVA, 760 metres.**—**8.55 a.m.** (from **Lausanne**), Chimes. **9.0** (from **Lausanne**), Protestant Service. **10.0** (from **Geneva**), Light Music on Gramophone Records. **11.0** (from **Geneva**), Readings. **11.30**, News Bulletin and Weather Report. **11.40** (from **Geneva**), Popular Music on Gramophone Records. **1.0 to 2.0**, Interval. **2.0**, Concert from the Temple du Bas, Neuchâtel. **5.30** (from **Geneva**), Catholic Address. **6.0** (from **Geneva**), Organ Recital by William Montillet, relayed from St. Joseph's Church. **6.40** (from **Lausanne**), Sports Talk, News and Announcements. **7.0** (from **Lausanne**), Clarinet and Pianoforte Recital. **7.40** (from **Lausanne**), Printemps—Comedy in One Act (Marcelle Maurette). **8.15** (from **Lausanne**), Song and Violin Recital by Mme. Greta Rumbeli-Trokay (Songs) and M. André Loew (Violin). **9.0**, News Bulletin and Weather Forecast. **9.15** (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—**11.40 a.m.**, Weather Report. **12 Noon**, Divine Service. **4.30 p.m.**, Afternoon Concert. **7.45**, Programme for Children. **8.30**, Weather Forecast. **8.40**, Musical Programme. **9.0**, Chimes. **9.2**, News Bulletin. **9.30**, Reading. **10.0**, Symphony (Bruckner) on Gramophone Records, followed by Dance Music. **1.0 a.m. (Monday)**, Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres**; and **2RO, 25.4 metres.**—**9.10 a.m.**, News, Sports Notes and Amusement Guide. **9.30**, Agricultural Report. **9.45**, Bible Reading. **10.0 to 11.0** and **11.30 to 1.30 p.m.**, See **Turin**. In the interval at **12 Noon**, Time and Announcements. **2.01**, See **Turin**. **6.30**, Football Results, Dopolavoro Notes and News. **7.0**, Time and Announcements. **7.30**, Sports Notes. **7.45**, Les Brigands—Operetta in Three Acts (Offenbach). In the intervals, Talk and Announcements. News after the Operetta.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres**, and by **W2XAD** on **19.56 metres.**—**7.0 p.m. to 12 Midnight, New York** Relay. **7.0**, International Radio Forum. **7.15**, Clyde Doerr and his Saxophone Octet. **7.30**, Musical Programme. **8.0**, Wayne King's Orchestra. **8.30**, Hour of Worship. **12 Midnight**, Dr. Frank Sill Rogers (Organist). **12.15 a.m. (Monday)**, Wheatena Ville—Sketch, from **New York**. **12.30**, Horse Sense Philosophy. **12.45 to 2.30, New York** Relay. **12.45**, Smith Brothers. **1.0**, Chase and Sanborn Hour. **2.0**, General Electric Sunday Circle Concerts. **2.30**, American Album of Familiar Music, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE, 244.1 metres**; and **BERNE, 245.9 metres.**—**10.0 a.m.** (approx.) (from **Zürich**), Concert of Chamber Music by Otto Rehm by the Radio Orchestra and Soloists. **11.0** (from **Zürich**), Concert by the Radio Orchestra. Soloist: Mela Feuerlein (Songs to the Lute). **11.28**, Time and Weather. **11.30**, News. **11.40**, Orchestral Concert (contd.). **12.30 p.m.**, Talk on the Einsiedeln Convent, with a Musical Setting, by the Convent Choir, relayed from Einsiedeln. **1.0**, Two Scenes from The Stage of the World (Calderon), with Final Chorus. **1.30**, Reading by Dr. Meinrad Lienert, with a Recital of his Songs set to Music by Volkmar Andreae, Friedrich Niggli, Hans Jcimoli, and Others, by the Meinrad Lienert Quartet. **2.15**, Interval. **3.0** (from **Zürich**), Popular Music on Gramophone Records. **4.0 to 5.30**, Interval. **5.30** (from **Zürich**), Talk in English: The English of the English. **6.0**, Time, Weather, and Sports Notes. **6.15** (from **Zürich**), Talk, Schaba, the Swiss Colony by the Black Sea. **7.0** (from **Zürich**), Concert by the Einsiedeln Musical Society, Male Voice Choir, and Mixed Choir, the Meinrad Lienert Quartet, and Meinrad Lienert, with Address by Herr August Bettschart. **8.30**, Weather and News. **8.40** (from **Einsiedeln**), Concert of Ländler Music and Songs by a Yodel Quartet. **9.30**, Sports Notes. **9.40** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres**; and **Sundsvall, 542 metres.**—**8.30 a.m.**, Programme for Country Children. **9.0**, Talk. **9.30**, Programme for Workers. **10.0**, Divine Service. **11.45**, Weather Report. **1.0 p.m.**, Running Commentary on the Wrestling Championship, relayed from **Helsinki, 368.1 metres**. **2.0**, Light Music on Gramophone Records. **3.0**, Talk, relayed from **Uppsala, 453.2 metres**. **3.30**, Choral Concert. **4.5**, Programme for Children, relayed from **Sundsvall**. **4.30**, Reading, from **Malmo, 231 metres**. **5.0**, Evensong. **6.30**, A Play (Axel Breidahl and Axel Frische). **7.55**, Orchestral Concert. Soloist: Kayla Mitzel (Violin): Concerto in A Minor, for Violin and Orchestra (Goldmark): Intrata from Divertimento, Op. 22, for Wind Instruments (Gál); Slav Rhapsody No. 1 in D (Dvorák). **9.0**, Light Programme. **10.0** (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW. **9.30 a.m.**, Orchestral Concert of Popular Music. **10.45**, Protestant Address in French. **11.30**, Catholic Service in German. **12 Noon**, Gramophone Concert of Classical Music. **12.45 p.m.**, News Bulletin. **1.0**, Time Signal. **1.1**, Light Music on Gramophone Records. **1.15**, Radio Re-

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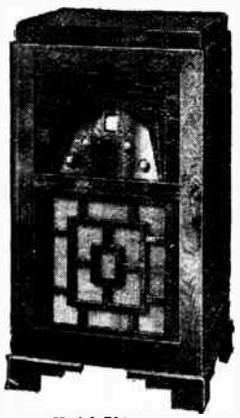

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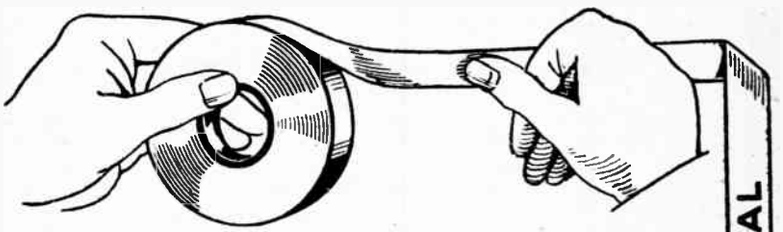

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port, relayed from the Tour aux Puces, **Thionville.** 1.30 to 2.45, Agricultural Talk in French. 3.0, Concert of Italian Music by the Orchestra and Choir of the Conservatoire and Soloists, relayed from **Nancy**; Requiem Mass for Soloists, Choir and Orchestra (Verdi); Symphonic Fragments from Le Convent sur l'eau (Casella); Symphonic Poem, Le Fontane di Roma (Respighi). In the interval, Talk on the Conservatoire of Music at Nancy. 5.15, Sacred Concert, relayed from St. Paul's Church, with a Bible Reading and Address. 6.15, Medical Talk in French: Serums and Vaccines. 6.30, Sports Talk. 6.45, Dance Music by the Station Orchestra. 7.30, Time Signal, News Bulletin and Sports Results. 7.45, Concert of Polish Music in Honour of Marshal Pilsudski, with an Address by the Polish Consul. Soloists: M. Lurié (Pianoforte) and M. Podgorski (Songs). Pianoforte Solo: Potpourri of Polish Music (arr. Lurié); Songs: (a) Stach (Noskowsky), (b) Krakowiak (Niwiadomsky); Pianoforte Solos: (a) Kujawiak (Wieniawsky), (b) Mazurka, Op. 7, No. 1 (Chopin); Songs: (a) The Soldier's Song (Moniuszko), (b) Song of the First Brigade. 8.45, Lottery Results and Announcements. 9.0, Le Misanthrope—Comedy in Verse in Five Acts (Molière). 11.0, Quintet Concert, relayed from **Radio-Coloniale (Paris) (25.63 metres).** 12.0 **Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.**—10.30 **a.m.,** See **Leipzig.** 11.0, God's Praise from Children's Lips—Der geheiligte Tag—A Sequence of Children's Prayers and Chorals, Op. 25 (Franz Philipp), from the Festhalle, **Karlsruhe.** 11.45, Talk: The People's Theatre at Württemberg. 12 **Noon,** Topical Talk. 12.15 **p.m.,** Gramophone Concert of Light Music. 1.5 (from **Karlsruhe**), Agricultural Talk. 1.30, Pianoforte Variations on the Deutschlandlied, Op. 18 (Alfred Reiff), played by the Composer. 2.0, Play for Young People, after a Book by Captain Marryat. 3.0, See **Frankfurt.** 3.55, Christian von Ompteda recites from the Works of his Father, Baron Georg vom Ompteda-Kreuz. 4.20, Accordion Concert. 5.0, Reading from the Works of Karl Maertin. 5.20, Clarinet Recital by Prof. Dreisbach. Pieces for Clarinet and Pianoforte, Op 73 (Schumann); Variations for Clarinet and Pianoforte (Weber). 5.50, Sports Notes. 6.10, Choral Concert by Boys of the Black Forest, relayed from **Billingen.** 6.35, Folk Music on Gramophone Records. 7.15, Justinus Kerner at Weinsberg—a Radio Sequence (Felix Buttersack). 8.15, Concert of German Music by the Stuttgart Philharmonic Orchestra, conducted by Arthur Haelssig. Triumphal March for Kuffner's Tarpeja (Beethoven); Gavotte from Idomeneo (Mozart); Ballet Music from Rosamund (Schubert); War March from Athalie (Mendelssohn); Invitation to the Dance (Weber); Albumblatt (Wagner); Two Hungarian Dances (Brahms); Valse d'amour (Reger); Waltz from Der Rosenkavalier (R. Strauss). 9.10, Time, News and Programme Announcements. 9.45, Programme from **Langenberg.** 11.0 (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—12.15 **p.m.,** News Bulletin. 12.30, Catholic Service. 1.0, Amusement Guide and Market Prices. 1.5, Orchestral Music. 1.15, Sound Film Music. 1.30, Accordion Solos. 1.40, Agricultural Report. 1.45, Protestant Service. 2.15, News Bulletin. 2.20, Orchestral Music. 2.45, Opéra Comique Music: Duet from Manon (Massenet); Vincenette à votre âge, from Mirella (Gounod); Les Clochettes from Lakmé (Delibes); Clair de lune from Werther (Massenet); Je suis très tendre, from Fortunio (Messager). 3.15, News and Racing Results. 3.20, Viennese Music. 3.30, Airs from Opera: Bacchanale from Tannhauser (Wagner); Triumphal March from Aida (Verdi). 3.45, Sound Film Music. 4.0, Music by an Argentine Orchestra. 4.15, Racing Results and News. 4.20, Popular Songs. 4.30, Dance Music. 5.0, Orchestral Music. 5.15, News and Racing Results. 5.20, Songs from Operetta. 5.30, Overture, William Tell (Rossini), by the Symphony Orchestra. 5.45, Melodies. 6.0, News Bulletin. 6.15, 'Cello Solos. 6.30 to 7.0, Programme in English by the I.B.C.; Concert of Dance Music: Till To-morrow; Always in my Heart; Bon Voyage; Wheezy Anna; Sweetheart, I'm dreaming of you; Hey, young Fella; There's Something about a Soldier; Happy Times; Have you ever been Lonely? 7.0, Airs from Opera. 7.15, News, Racing Results, and Market Prices. 7.25, Local News. 7.30, Accordion Solos. 7.45, Opera-Comique Songs. 8.0, Popular Songs. 8.15, Military Music. 8.30, Choral Music. 8.45, Lehar Waltzes. 9.15, Sound Film Music. 9.30, Orchestral Concert. 10.0, Songs from Opéra-Comique. 10.15, North African News, followed by Concert for Listeners in Morocco. 10.30 to 12 **Midnight,** Programme in English by the I.B.C. 10.30, Paget Concert of Light Music. Pianoforte Solo: Memories of Maurice Chevalier. Vocal Duets: (a) When we are alone, (b) My Baby just cares for me; Accordion Duet: Poppies; Song, A little Love Nest for Two; Song, Body and Soul; Pianoforte Solo: Selection from Wonder Bar; Song, When your Hair has turned to Silver; Vocal Duets: (a) When Yuba plays the Rumba on the Tuba, (b) Little old Church in the Valley; Accordion Duet: Waltz, Gold and Silver; Songs: (a) Just a little Lady, (b) I certainly don't need you; Pianoforte Solo: Selection from White Horse Inn. 11.30, Dance Music; Marching along together; Mad about the Boy; She was only Somebody's Daughter; The Younger Generation; Marry me; Round the Bend of the Road; After To-night we say Goodbye; Love is the sweetest Thing. 11.57, I.B.C. Goodnight Melody. 12 **Midnight,** Weather and Announcements. 12.5 **a.m. (Monday),** Dance Music. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—8.40 **a.m.,** See **Rome.** 8.55 **to** 10.0, Mass from the Cathedral of San Giusto. 10.0 **to** 10.20, Agricultural Talk. 11.0 till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.**—8.40 **a.m.,** Giornale Radio. 8.55 **to** 9.40, Interval. 9.40, Agricultural Talk. 10.0, Mass from the Church of the Annunciation, Florence. 11.0 **to** 11.5, Bible Reading. 11.30, Orchestral Concert. In the interval at 12 **Noon,** Time and Announcements. 12.30 **to** 1.30, Orchestral Concert of Light Music. 2.0, Transmission of an Opera. Sports Notes in the intervals. After the Opera, Football Results. 6.0, Dopolavoro Notes. 6.5, Light Music on Gramophone Records. 6.30, Time, Announcements, and Gramophone Records of Variety Music. 7.0, Giornale Radio, Sports Notes, and Gramophone Records (contd.). In the intervals, Talk, Theatre Notes, and Giornale Radio.

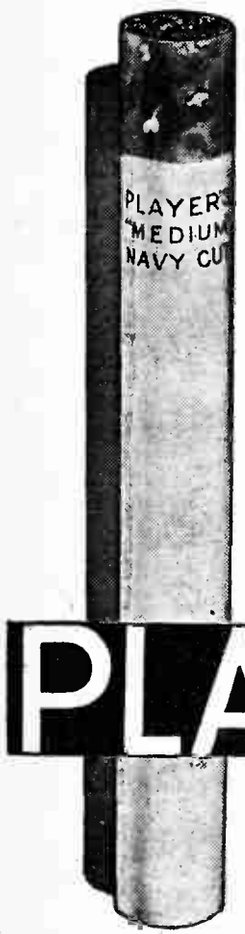
VIENNA

517 metres; 15 kW. Relayed by **Graz., 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.**—10.30 **a.m.,** Concert by the Vienna Symphony Orchestra, conducted by Anton Konrath; Soloist, Wilhelm Winkler ('Cello): Overture, Così fan tutte (Mozart); Concerto, Op. 60, for 'Cello and Orchestra (Schreiber); Fourth Symphony in F Minor (Tchaikovsky). 11.50 **to** 1.0 **p.m.,** Orchestral Concert of Seldom-played Waltzes. 2.0, Time and Programme Announcements. 2.5, Book Review. 2.30, Talk on the Neusiedler See. 3.0, Military Band Concert, relayed from **London.** 3.55, Talk: Touring in Sicily. 4.25, Chamber Music: String Quartet in D Minor (Weigl); String Quartet in A (Mozart). 5.25, Heinrich B. Kranz reads from his own Works, with Introductory Talk by Oscar Bendiener. 5.55, A Guessing Competition, Chess and Bridge Lessons. 6.25, Time, Programme Announcements, and Sports Notes. 6.35, Part Relay of the Workers' Symphony Concert, from the Konzerthaussaal; Conductor, Dr. Anton Webern; Soloist, Desider Kovacs (Baritone): Kleine Blasmusik, Op. 70a (Krenek); Cantata, Op. 28, for Voice and Orchestra, Campanella (Pisk). 7.30, Wien bleibt Wien—Radio Potpourri (Lothar Riedinger), by Soloists, Two Choirs, the Pepi Wichart Quartet, Josef Holzer's Orchestra, and the David Mathé Dance Band. 9.0, News. 9.15, Dance Music from Operettas and Revues.

WARSAW

1,411 metres; 120 kW.—10.57 **a.m.,** Time Signal and Bugle Call from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Weather Forecast. 11.15, Marshal Pilsudski Festival Programme, arranged by the Warsaw Rifle Club. An address followed by Concert by the Warsaw Philharmonic Orchestra, conducted by J. Ozimniski, and Soloists: Hne. Czerniawska (Recitations), L. Szczepanska (Soprano), M. Salecki (Tenor), and A. Wielhorski (Pianoforte). In the interval, Talk. 1.0 **p.m.,** Veterinary Talk. 1.20, Police Band Concert. In an interval at 1.40, Talk. 3.0, Programme for Children. 3.25, Popular Music on Gramophone Records. 3.45, Talk: Marshal Pilsudski as a Commandant. 4.0, Military Songs. 4.20, Violin Recital by Mme. Uminska. 4.55, Programme Announcements. 5.0, Light Music. In the interval, News. 6.0, Miscellaneous Items. 6.25, Talk. 7.0, Concert. 8.20, Sports Notes. 8.30, Pianoforte Recital by Claudie Arrau: Sonata in G (Mozart); Pictures from an Exhibition (Mussorgsky); El Puerto (Albeniz); Triana (Albeniz). 9.15, Dance Music. 9.55, Aviation Weather Report and Police Notes. 10.0, Dance Music.

ZURICH.—See **Schweizerischer Landessender.**



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MONDAY
MARCH THE TWENTIETH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	B.B.C. chamber concert. "Pleasure Cruise," feature programme by John Watt.
LONDON REGIONAL	Guards Band programme. Light orchestral concert.
MIDLAND REGIONAL	Military Band concert from Bingley Hall. Chamber music from Queen's College, Birmingham.
NORTH REGIONAL	Three plays: "The Alarm," by Whittie Kerr, "Hotel Palatial," by G. Morley Swain, and "Advertising Drama," by George Beaumont.

ABROAD

BARI	7.35 p.m. Opera: "Rigoletto" (Verdi), on gramophone records.
BERLIN	8 p.m. Schubert pianoforte recital by J. Strauss.
BRUSSELS (No. 2)	8 p.m. The Symphony Orchestra, conducted by A. Meulemans.
EIFFEL TOWER	7.30 p.m. Concert arranged by the Composers' Society.
HAMBURG	6 p.m. Opera: "Lohengrin" (Wagner), from Brunswick.
LWOW	7 p.m. Opera: "Don Carlos" (Verdi), from the Municipal Theatre.
PALERMO	7.45 p.m. Chamber music.
PRAGUE	6.30 p.m. Two comic operas: "A Painter's Downfall" (Zich), and "The Pig-Headed Peasants" (Dvorak).
ROME	4.30 p.m. Concert from the Royal Philharmonic Academy. 9 p.m. Light music.
STRASBOURG	8.30 p.m. Chamber music by the Cercle Artistique de l'Est.
WARSAW	7 p.m. Opera: "Don Carlos" (Verdi), from Lwow.

ATHLONE

413 metres; 60 kW.; and **Cork, 224.4 metres.**—**1.30 to 2.0 p.m.,** Time, Weather, Stock Report and Popular Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.32,** Gaelic Talk. **7.45,** Talk by the Minister for Local Government: Housing in the Irish Free State. **8.0,** Organ Recital by George Harrison, relayed from St. George's Church. **8.30,** Contralto Solos by Eilis Denn. **8.50,** Accordion Solos by Michael Grogan. **9.0,** Tenor Solos by P. J. O'Toole. **9.20,** Sketch presented by May Carey and Co. **9.50,** The Station Orchestra. **10.30,** Time, News, Weather and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **6.30,** Quintet Concert, relayed from the Café de la Rambla. **7.20,** Sports Notes. **7.30,** Exchange Quotations and Talk in Catalan. **8.0,** Light Music on Gramophone Records. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. **9.5,** Humorous Review of the Week in Verse. **9.15,** Concert of Sardanas. **10.0,** Albeniz Concert by the Station Orchestra. **10.30,** Catalan Radio Gazette. **11.0,** News followed by Concert by the Station Orchestra. **11.30,** Dance Music, relayed from the Excelsior Dance Hall. **12 Midnight** (approx.), Close Down.

BARI

270 metres; 20 kW.—**7.0 p.m.,** Agricultural Report, Tourist Talk and Popolavoro Announcements. **7.20,** Giornale Radio and Press Review. **7.30,** Time and Announcements. **7.35,** Rigoletto—Opera (Verdi) on Gramophone Records. In the intervals, Talk and Theatre Notes. After the Opera, News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—**4.0 p.m.,** Dialogue in German. **5.55,** Time Signal and Programme Announcements.—**6.0,** Recital of Folk Songs. **6.40,** Popular Music on Gramophone Records. **6.50,** Introductory Talk to the following Relay. **7.0,** Relay of an Opera from the National Theatre. In an interval at **8.30** (approx.), News.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert from **Berlin (Witzleben).** **2.0,** Talk for Women: Making Lace-edged Table Cloths. **2.30,** Weather and Exchange. **2.45,** Review of Books. **3.0,** Talk: The Elementary Schools. **3.30,** Concert from **Berlin (Witzleben).** **4.10,** Talk: Dangerous Insects and their Stings. **4.30,** Chamber Music—Old Arias and Cantatas: Sacred Concerto, Lobgesang (Heinrich Schütz); Aria with Flute Obbligato: Bin ich denn so gar verlassen? (Telemann); Aria with Flute obbligato: Was Gott tut, das ist wohlgetan (Bach). **5.0,** Talk: The Burning Question of the Expatriated Germans in Europe. **5.30,** Making Music with Invisible Partners. **5.55,** Weather and Announcements. **6.0,** French Lesson. **6.30,** A Poem. **6.35,** Concert from **Munich.** **7.0,** Hölderlin—A Radio Play (Veit Rosskepf). **8.0,** Schubert Pianoforte Recital by Johannes Strauss: Moments musicaux, Op. 94, Sonata in G; Fantasia, Op. 78. **9.0,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Dance Music from **Berlin (Witzleben).** **11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**3.30 p.m.,** Concert by the Arthur Damp Orchestra: March, Hoch Heidecksburg (Herzer); Aus der Rügenschen Volkssuite (Damp); Waltz, An der schonen grünen Narenta (Komzak); Selection from Gri-gri (Lincke); Reverie (Leoncavallo); Selection from La Traviata (Verdi). **4.30,** Dialogue: The Camera as a Political Weapon. **4.50,** Talk for Young People on Water Sports. **5.10,** Talk: The Upper Silesian Plebiscite. **5.55,** The Witzleben Station informs its Listeners. . . . **6.0,** Topical Talk. **6.10,** Gramophone Concert: March, In Treue allezeit (Pöhland); Zither Quartet: (a) Waltz, Der Weg zum Herzen, (b) Ländler, Schwanthalerhöh'er (Freundorfer); Waltz, Moonlight on the Alster (Fetras); March, Mein Regiment (Blankenburg). **6.30,** Talk on Music. **6.40,** Announcement. **6.45,** The Call—a Radio Picture (Hermann Kasack, arr. Ottoheinz Jahn), Music by Karl Knauer. **8.0,** Variations on a Scottish Folk Melody, Op. 23 (Günther Raphael), by the Berlin Wireless Orchestra, conducted by Eugen Jochum. **8.20,** Max Reger Commemoration. Introductory Talk. Variations and Fugue on a Theme by Mozart, Op. 132, by the Berlin Wireless Orchestra, conducted by Eugen Jochum. **9.10,** Weather, News, and Sports Notes, followed by Dance Music from the Europa Pavilion. **11.0** (also relayed by Zeesen on 31.38 metres), Röntgen—the History of a Discovery (arr. Werner Damprecht) on Gramophone Records.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—**7.30 p.m.,** News, Exchange, and Market Prices. **7.40,** Talk: Bordeaux a Hundred Years Ago. **7.55,** Lottery Results. **8.0,** Health Talk. **8.15,** Charades. **8.20,** News and Weather. **8.30,** Concert of Classical and Modern Music; Soloists: Germain Dyrville (Soprano), M. Cahmpeil (Violin), M. Baronk ('Cello), M. Duffour (Oboe), and M. Grange (Pianoforte).

BRATISLAVA

279 metres; 14 kW.—**3.10 p.m.,** Orchestral Concert: Overture, J. K. Tyl (Dvorak); Overture, The Kiss (Smetana); Overture, The Secret (Smetana); Overture, In the Well (Biodek); Overture, Matej Kopecky (Kricka); Overture (Weinberger); Slav Overture (Titl). **4.10,** See **Prague.** **4.50,** Popular Music on Gramophone Records. **5.0,** Pianoforte Trio Op. 102 (Reger) for the Sixtieth Anniversary of the Composer's Birth. **6.0,** See **Prague.** **6.10,** Talk for Women. **6.20,** See **Prague.** **9.15** (approx.) Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres, 60 kW.; and **GLEIWITZ, 253 metres.**—**12.5 p.m.,** Weather for Farmers. **12.10,** Gramophone Concert of Marches and Dances from Opera. **12.45,** Time, Weather, News, and Exchange. **1.5,** Gramophone Concert of the International Dance Band. **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Market Prices. **2.40,** Silesian Periodicals. **3.0,** Talk: The Work of the History and Archives Commission. **3.20,** Orchestral Concert, conducted by Hermann Behr. **4.30,** Market Prices. **4.35,** Talk: The Technical Application of Acoustics. **4.55,** News for the Intellectual World. **5.15,** English Lesson. **5.40,** Topical Talk. **6.0,** Talk: The German Populations in the East European States. **6.25,** Weather and Market Prices. **6.30,** Organ Recital from the Sandkirche: Prelude in G (Bach); Allein Gott in der Höh' sei Ehr (Bach); Es ist das Heil uns kommen her (Bach); Lobt Gott, ihr Christen allzugleich (Buxtehude); Toccata and Pastorale (Pachelbel); Toccata in D Minor (Reger). **7.0,** The Silent Fatherland—Literary Programme. **8.0,** Concert of Chamber Music from **London.** **9.0,** Time, News, and Programme Announcements. **9.30,** Answers to Technical Queries. **9.40,** Impressions of a Journey in the East—through Mukden, Korea, and Japan in Two and a Half Days. **10.0** (approx.), Close Down.

BRNO

342 metres; 35 kW.—**5.25 p.m.,** German Transmission: News, Elementary French Lesson, and Talk for Young People. **6.0,** See **Prague.** **9.15,** Talk in Esperanto. **9.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—**12 Noon,** Variety Music on Gramophone Records. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans: Corteggio d'Eroi (Schinelli); Almeria (Mahy); Potpourri of Millöcker's Music (Morena); Pianoforte Solos (Paques): (a) Hot Piano, (b) Jazz-o-piano; Serenade (Padilla); Tango (Porges-Rollins); Waltz, Dixie Night (Repper); Foxtrot-Fantasia (Kochmann). **2.0,** Educational Programme. **5.0,** Gramophone Concert of Folk Music from Belgium, Russia, America, Tahiti, Spain, Catalonia, Poland, Hungary, Armenia and France, and Hebrew Folk Songs. **6.0,** Talk: Accidents at Work and Occupational Diseases. **6.15,** Saxophone Solos on Gramophone Records: Rhapsody for Orchestra and Saxophone (Debussy); Schön Rosmarin (Kreisler); Golliwog's Cake Walk (Debussy). **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans: Selection from Sicilian Vespers (Verdi); Suite (Chavarri); Serenade (Godard); Barcarolle for Pianoforte (d'Agrèves); Two Pieces for Violin (Callemien); Selection from Quo Vadis? (Nougès). **7.15,** Talk: The Colonisation of the Belgian Congo. **7.30,** Theatre and Film Review. **8.0,** Concert by the Radio Orchestra, conducted by Franz André. Soloist: Lola Martini. Match Parade (Wehle); Lying in the Hay. **8.15,** Scenes from Volpone—Drama in Five Acts (Jules Romain-Stefan Zweig) after Ben Johnson. **9.35,** Concert (contd.).; Three Songs (Jacobs); Jazz Fantasia (Candrix). **10.0,** Le Journal Parlé. **10.10,** Hot Jazz with Commentary. **10.30,** Dance Music on Gramophone Records. **11.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Concert by the Small Station Orchestra, conducted by P. Leemans. Soloist: M. Gilman (Flute). Overture, Tancredi (Rossini); Suite Lorraine (Boisdeffre); Au matin (Godart); Selection from Cavalleria Rusticana (Mascagni); Humoresque for Flute (Sarly); Mattinata (d'Ambrosio); Foxtrot Bolero, Speak Easy (Gensler); Selection from Là-haut (Yvain). **1.0 p.m.,** Journal Parlé. **1.10,** Gramophone Concert: March, Pomp and Circumstance (Elgar); Hungarian Rhapsody (Popper); Norwegian Bridal Procession (Grieg); Spanish Dance No. 6 (Granados); Baci di Bambola (Tagliaferri); Intermezzo from L'amico Fritz (Mascagni); Après un rêve (Fauré); Soirées de Vienne (Schubert-Liszt); Chanson villageoise (Popper); The Nursery Suite (Inghelbrecht); Visione livica (Mascagni); Coronation March (Saint-Saëns). **2.0,** Programme for Schools. **5.0,** Concert by the Radio Orchestra, conducted by Franz André: March from Sigurd Jorsalfar (Grieg); Ballet Music from Milenka (Blockx); Valse triste (Sibelius); Humoresque (Dvorak); Malaguena (Sarasate); Negro Spirituals; Tuegos (Turina). **5.45,** Programme for Children. **6.30,** Gramophone Concert: Quartet in F (Haydn); Pagodes (Debussy); Russian Airs (Wieniawski); Rhapsodie limousine (Billant); Valse romantique (Debussy); Overture, La farce du cuvier (Dupont). **7.15,** Talk on the Youth Movement. **7.30,** Programme by Pirreke Pirrewit. **8.0,** Concert by the Symphony Orchestra, conducted by Arthur Meulemans. Soloist: Walter Weyler (Songs). Symphony No. 2 in B (Borodin); Dances from Prince Igor (Borodin); Selection from Der Rosenkavalier (R. Strauss); Songs; Petite suite (Rocls); Songs; Rhapsody, Piet Hein (Anrooy); March, Librado (Alpaerts). In the interval at **8.45,** Talk: Women in Modern Society. **10.0,** Journal Parlé. **10.10,** Gramophone Concert of Dance Music.

BUCHAREST

394 metres; 12 kW.—**4.0 p.m.,** Concert by the Station Orchestra: March (Schinelli); Waltz, Sobre las Olas (Rosas-Paschernegg); Overture, Rosamund (Schubert); Suite, Un Bal costumé (Rubinstein); Selection from The Rose of Stamboul (Fall). **5.0,** News and Time Signal. **5.10,** Talk. **5.25,** Concert (contd): Potpourri of Folk Tunes (Dron); Potpourri of Dances (Niemann). **6.0,** Talk on Roumania: Her Folk Literature. **6.40,** Light Music on Gramophone Records. **7.0,** Quartet in D flat (Dohnanyi). **7.30,** Talk. **7.45,** Harp Recital. **8.5,** Chamber Music: Aubade for Violin, Viola and 'Cello (Enesco); Serenade for Pianoforte, Violin and 'Cello (Sibiano). **8.35,** Light Music and Romanian Music, relayed from the Enesco Restaurant. **9.0,** News.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on **840 metres** from **6.30 p.m.** till Close Down. **4.0 p.m.,** Orchestral Concert. **4.40,** Talk: Hungary's Share in the Art of the Renaissance. **5.10,** Choral Concert. **6.0,** Talk. **6.40,** Concert by the Philharmonic Orchestra, conducted by Ernst Dohnanyi, the Palestrina Choir, and a Boys' Choir; Soloists: Frau Maria Basilides and Mischa Lewitzky: Pianoforte Concerto in A Minor (Schumann); Third Symphony (Mahler). **9.0,** News Bulletin. **9.15** (approx.), Dance and Cigány Music, with Songs, relayed from the Café Patria.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Time Signal and Chimes from the Town Hall. **11.2,** Concert by the Max® Skalka String Ensemble, relayed from the Hotel d'Angleterre. **1.0 to 2.20,** Interval. **2.20,** Talk for Housewives. **2.30,** Concert by Louis Preil's Instrumental Ensemble. Soloist: Sören Stein (Songs). Spanish March (Gyldmark); Waltz (Moe); Rogne Song Fantasy (Stothart); Anelito d'amore (Leoncavallo); Indian Love Song, By the Waters of Minnetonka (Lieurance); Slav Rhapsody (Friedemann); Neapolitan Serenade (Rivelli); Spanish Gipsy Dance (Marquina); Five Songs: The Woman in the Shoe (Brown); Serenade No. 2 (Heykens); Pfannkuchens Geburtstag (Link); Valse Impromptu (Oldenburg-Poulsen); The Red and Blue Blues (Edwards); First Suite (Rosenberg); Melody (Fall); Nächtliche Runde (Urbach). **4.40,** Exchange and Fish Market Prices. **4.50,** Talk: Educational Literature in the New Russia. **5.20,** English Lesson. **5.50,** Weather. **6.0,** News. **6.15,** Time Signal. **6.30,** Talk: World History in Personalities. **7.0,** Time Signal from the Town Hall. **7.1,** Relay of a Meeting of the Workers' Radio Society and the Danish Radio Club. **10.0** News. **10.15,** Dance Music by the Jens Warny Band, relayed from the Nimb Restaurant. In the interval at **11.30,** Time Signal and Chimes from the Town Hall. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**6.0 to 7.0 p.m.,** Programme in English by the I.B.C. C. Danvers-Walker, F. Lamping and B. McNapp announcing. **6.0,** Military Band Concert for Hastings Listeners. Carry on (Dundas); Cupid's Army (Sievier); The Mad Major (Alford); The Elephant March (Ord Hume);

Down South (Myddleton); The Whistler and his Dog (Pryor); In the Sudan (Sebek); The Middy March (Alford). 6.30, Concert for Eastbourne Listeners. Pianoforte Solo: Whoopee Medley (Kahn); Songs: (a) When I met Sally at the Seaside (Tilsey), (b) I miss a little Missy (Coots), (c) You used to be my Sweetheart (Towers), (d) Going, going, gone (Evans), (e) They all make love but me (Damaré), (f) You don't have to tell me (Donaldson); Pianoforte Solo: Selection from Monte Carlo (Robin). 7.0, Programme in French. 10.0 p.m. till Close Down, Programme in English by the I.B.C. 10.0, Concert of Dance Music. I'm following you; The Web of Love; I'm still at your Beck and Call; Livin' in the Sunlight, lovin' in the Moonlight; Paris; What good am I without you?; One little drink; Falling in love again; Parisienne Doll; With you; The Woman in the Shoe; Steppin' along; I may be wrong; Just an hour of Adoration; Do something. 11.0, Orchestral Concert. Maurice Chevalier Medley; Sous les toits de Paris (Moretti); When the Lilac blooms again (Rotter); In the Night (Tate); My Sunshine is you (Stolz); Happy Days and Lonely Nights (Fisher); Goodnight, Sweetheart (Noble). 11.30, Plantation Songs. Bye and bye; I got a Robe; O dem Golden Slippers; Go down, Moses; Deep River; Poor old Joe; Nobody knows de Trouble I've seen; Every Time I feel de Spirit; River stay 'way from my Door. 12 Midnight, Music Hall Sketches. The Plumber's Mate; Duet, Getting a Job; Doon the Watter; Duet, Getting the Sack; Days of the Dugouts. 12.30 a.m. (Tuesday), Concert of Popular Songs. Ain't it great to be Home again (Gilbert); Cheer up and smile (Conrad); Silvery Moon (de Frank); Here comes Emily Brown (Conrad); I'm feathering a Nest (Milton); Every little Girl be secs (Akst); This is Heaven (Akst); Nobody cares if I'm blue (Clarke). 1.0, Organ Solos. The Kiss Waltz (Dubin); It happened in Monterey (Wayne); Stein Song (Vallee); Moonlight reminds me of you (Kahn); Roses of Yesterday (Berlin); Ah sweet Mystery of Life (Herbert); Rhapsody in Blue (Gershwin). 1.30, Concert of Popular Songs. I'm in the Seventh Heaven (de Sylva); Wishing and Waiting for Love (Clarke); Little Pal (Henderson); Am I blue? (Akst); Just Plain Folk (Gilbert); Sleep, Baby, Sleep (Tucker); The Heart of the Sunset (Nicholls); Take your to-morrow (Razof). 2.0, Concert of Dance Music. You just you; We just couldn't say Good-bye; Don't say Good-bye; In a Shanty in Old Shanty Town; When the Band goes marching by; She was only Somebody's Daughter; Bravo, Jim; Marching along together; After to-night we say Good-bye; Silver Hair and Heart of Gold; Good-bye Blues; Song of the Bells; Yes, Mr. Brown; Take a Spot of Happiness. 2.57, I.B.C. Good-night Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW.; **CASSEL, 245.9 metres**; and **TRIER, 259.3 metres.**—**12.30 p.m.**, Concert from **Langenberg.** 1.0, News. 1.10, Sponsored Concert. In the interval at 2.0, Weather Report, and at 2.10, Time and Exchange Quotations. 3.50, Exchange. 4.0, See **Munich.** 5.15, Exchange. 5.25, Talk: Industry and Public Burden. 5.50, English Lesson. 6.15, Time, Programme Announcements, Weather and Exchange. 6.20, Talk: Post horns. 6.45, See **Berlin (Witzleben).** 7.45, Trio in E Flat for Pianoforte, Violin and French Horn (Brahms), relayed from the Saalban. 8.25, Love Poems read by Paul Lavens. 8.50, Tales of the War 1870-71, by Hessian Veterans. 9.10, Time, News, Weather and Sports Notes. 9.45, Serenade by the Station Orchestra, conducted by Hans Rosbaud. Soloist: Udo Dammert (Pianoforte); Dance of the Flowers (Max von Schillings); Pianoforte Concerto, Op. 9 (Karl Marx); Love Scene from Romeo and Juliet (Berlioz); Variations on a Theme by Paganini (Brahms); Overture, Die Feen (Wagner). 11.0 (approx.), Close Down.

FREDRIKSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse); **372 metres**; 1.5 kW. Relayed by **Bremen, 269.8 metres**; **Flensberg, 227.4 metres**; **Hanover, 566 metres**; and **Kiel, 232.2 metres.**—**5.45 p.m.**, Frankfurt Exchange and Hamburg Market Prices. 5.55, Weather Report. 6.0 (from **Hanover**), Lohengrin—Opera in Three Acts (Wagner), relayed from the Landestheater, Brunswick. In the intervals, Talk by Prof. Ludwig Leichtweiss and News. 10.0, Time and News. 10.10, Topical Talk. 10.20, Ice Report. 10.25, Concert relayed from the Hotel Reichshof.

HANOVER.—See **Hamburg.**

MARCH 20th MONDAY *continued*

HEILSBERG

276.5 metres; 60 kW.; and **DANZIG, 453.2 metres.**—**12.5 p.m.**, Gramophone Concert of Italian Opera Music. March and Finale from Aida (Verdi); Duet from Aida (Verdi); Soprano and Baritone Duet from I Pagliacci (Leoncavallo); Serenade; Vocal Quartet from La Bohème (Puccini); Selection from Cavalleria rusticana (Mascagni); Bass Aria from Don Carlos (Verdi); Soprano Aria from Lucia di Lammermoor (Donizetti); Duet from Madam Butterfly; Overture, Susanna's Secret (Wolf-Ferrari). In the interval at 12.20, News. 1.30, Exchange Rates. 2.0, Market Prices. 2.30, Talk: Women in German Life—Old Questions and New Answers. 3.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken. Overture, Lestocq (Auber); Suite, Sketches of Spain (Börschel); Selection from The Barber of Seville (Rossini); Sensualism (Hintze); Humoresque (Lalo); Overture, Ein Opernball (Heuberger); Waltz, Wellen und Wogen (Joh. Strauss); Selection from Fatinitza (Suppé). 4.30, Talk: Do you speak German? 4.45, Review of Books. 5.15, Market Prices. 5.20, Ice Report. 5.30 (from **Danzig**), Talk: Street Music in Old Danzig, with Illustrations. 5.55, Talk: Memorable Days of the Week. 6.5, Elementary English Lesson. 6.35, Weather and News. 6.45, See **Berlin (Witzleben).** 8.0, Concert, by the Berlin String Quartet. Quartet in D, Op. 20, No. 4 (Haydn); Quartet in C, Op. 59, No. 3 (Beethoven). 8.50, Recitations from the Works of Friedrich Castelle. 9.15, Weather and News.

HILVERSUM

Announced **HUIZEN, 296.1 metres**; 20 kW. (7 kW. up to **4.40 p.m.**).—Programme of the Christian Radio Society (N.C.R.V.). 12.10 **p.m.**, Organ Recital from **Amsterdam.** 1.40, Talk for Schools. 2.15, Talk by A. J. Herwig. 2.55, Dressmaking Lesson. 3.25, Programme to be announced. 3.40, Programme for Seamen. 4.40, Vocal and Instrumental Concert. 6.10, Question Time. 7.10, Police Notes. 7.25, News Bulletin. 7.40, Concert by the Dutch Choral Society: Con Amore. 8.40, Talk by Dr. le Cointre. 9.0, Band Concert of Sacred Music. Soloist: A. de Vink-Verschoor (Soprano). In the interval at 9.35, News. 10.10, Gramophone Concert: Overture, Fingal's Cave (Mendelssohn); Scherzo from the Third Symphony in D Minor (Bruckner); Till Eulenspiegel's Merry Pranks (R. Strauss); Overture, The Mastersingers (Wagner); Piston Solo with Organ Accompaniment: The Holy City (Adams); Tenor Solo: Sei getreu bis in den Tod (Mendelssohn); Madrigal Choir: Wie wohl ist mir, o Freund der Seelen (Bach); Dank nu den Heer voor al Zijn zegeningen. 11.10 (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres**; 8.5 kW.—**11.40 a.m.** till Close Down. Programme of the Workers' Radio Society (V.A.R.A.). 11.40, Concert by the Small V.A.R.A. Orchestra, conducted by P. Duchant: Russian March (Strauss); Legend No. 4 (Dvorak); Pavane (Hekker); Suite (Ramsay); Minuet (Boccherini); Sine nomine (Altink); Gramophone Records; Suppé Potpourri (Urbach); Rêve (d'Ambrosio); Chimère (Fresco); Comedy Overture (Aletter); Gramophone Records: Selection from Hansel and Gretel (Humperdinck); Zoo zingt Holland (Shuyter-Hoogenboom); March (Lehár). 1.40 **p.m.**, String Quartet Concert. 2.50, Recitations. 3.10, Concert by De Fliererfluiters, conducted by H. de Groot. Gramophone Records in the intervals. 4.20, Programme for Children. 4.50, Variety Concert by the Wladimir Pique Trio. 6.25, Recitations. 6.40, Talk on Music. 7.35, S.O.S. Announcements. 7.40, Concert by the V.A.R.A. Orchestra, conducted by H. de Groot. Soloist: Cora de Lange-van Rijn (Soprano). Selection from The Secret Marriage (Cimarosa); Songs with Orchestral Accompaniment: (a) Ah mio cor schmernito sei (Handel), (b) Sebben crudele (Caldara), (c) Chi vuol la Zingarella (Paisiello); German Rococo (Günther). 8.10, The Voice of the Earth—Radio Play (Menzel). 9.40, Concert by the V.A.R.A. Orchestra, conducted by H. de Groot. Soloist: Cora de Lange-van Rijn (Soprano). Serenade for String Orchestra (Volkmann); Song with Orchestral Accompaniment, from Die Zerstörung Jerusalems (Klughardt); Rêve (Vieuxtemps); Overture, Die Fledermaus (Joh. Strauss); Selection from Sylvia (Delibes). 10.30, News. 10.40, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.0 p.m.**, Talk on the Dead Sea. 6.15, Announcements and Popular Music on Gramophone Records. 6.25, Hunting Notes. 6.30 till Close Down, See **Warsaw.**

KAUNAS

1,935 metres; 7 kW.—**6.0 p.m.**, Time Signal, Weather Forecast and News Bulletin. 6.30, Popular Concert. 7.0, Biological Talk. 7.20, Concert of Chamber Music. 7.50, Talk on Finance. 8.10, Variety Programme. 8.50, Sports Talk. 9.0, Concert. 9.30 (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres; 40 kW.; and **HELSINKI, 368.1 metres.**—**4.0 p.m.**, Talk. 4.20, German Lesson. 4.59, Time and Weather. 5.10, News in Swedish. 5.15, Agricultural Report. 5.25, A Sport Report (to be announced). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

473 metres; 60 kW.—**12 Noon**, Concert conducted by Wolf: Overture, Stradella (Flotow); Waltz, Dorfschwalben aus Osterreich (Jos. Strauss); Four Indian Love Lyrics (Woodforde-Finden); Selection from Halka (Moniuszko); Shadow Dance from Dinorah (Meyerbeer); Prelude, Chorus and Dance from Das Pensionat (Suppé); Spanish Rhapsody (Chabrier); Selection from The Little Dutch Girl (Kálmán). In the interval at 1.0 **p.m.**, News. 1.30, Meat Market Prices. 2.30, Economic Notes and Time. 2.50, Programme for Children. 3.20, Talks for Young People. 4.0, See **Munich.** 5.0, Talk: How long does a Book live? 5.25, Talk for Women. 5.45, Weather, Time, Economic Notes and Sports Results. 6.0, Talk: In Memory of the Upper Silesian Plebicite in March, 1921. 6.30, News. 6.45, See **Berlin (Witzleben).** 8.0, Symphony in C (Schubert), by the Station Orchestra, conducted by Buschkötter. 9.5, News and Sports Notes. 9.25, Serenade, conducted by Wolf. 11.0 (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN, 319 metres.**—**11.5 a.m.**, Concert of Folk Music on Gramophone Records. 12 Noon, News, Weather, Snow Report and Time. 12.15 **p.m.**, Gramophone Concert of Classical Music. Exchange Quotations after the Concert. 1.0, Art and Film Review. 1.30, Advice for the Unemployed. 1.45, Anecdotes about the Musicians, Bruckner and Nikisch. 2.5 to 2.15, Agricultural Notes. 2.35, Exchange and Market Prices. 3.0, Instrumental Concert. 4.30, Weather and Time. 4.50, Exchange Quotations. 5.0, Talk: Disciplinary Problems in the Secondary Schools. 5.30, Pianoforte Recital by Janka Weinkauf. 5.50, Programme Announcements. 6.0, Talk: Social Politics in Italy. 6.30, Upper Silesia Programme on the Twelfth Anniversary of the Plebiscite 7.0, The Fjords and Cliffs of Norway—Radio Sequence (Alfred Matusche). 8.0, News Bulletin. 8.10, Max Reger Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer. Soloist: Johanna Egli (Contralto). Hymnus der Liebe, Op. 136, for Contralto and Orchestra; Serenade in G, Op. 95, An die Hoffnung, Op. 124, for Contralto and Orchestra. 9.10, News Bulletin. 9.30 (approx.), Concert by the Dresden Soloists' Ensemble: Osokonay Overture (Keler-Bela); Finnish Suite, In the Land of the Thousand Lakes (Juel-Frederiksen); Selection from Lieslott (Künneke); Waltz, Immortellen (Gungl); Andante from the First 'Cello Concerto, Op. 14 (Goltermann); Norwegian Bridal Procession (Grieg); Gondoliera (Bossi); Nürmelndes Lürtchen (Jensen); Zigeuner - Sehnsucht (Nicklas - Kempner); Waltz, Op. 245 (Waldteufel); Egyptian March from Cleopatra (Oscar Straus); Selection from Der Rastelbinder (Lehár). 10.30 (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

574.7 metres; 7 kW.—**5.30 p.m.**, Esperanto Lesson. 6.0, Serbo-Croatian Lesson. 6.30, Talk on Hygiene. 7.0, Symphony Concert, relayed from the Union Hall. 9.0, Time, News and Light Music.

LWOW

381 metres; 16 kW.—**6.30 p.m.**—See **Warsaw.** 7.0, Don Carlos: Opera (Verdi) relayed from the Municipal Theatre; In the first interval, News from Warsaw; In the second interval, Talk. 11.0 (approx.), Close Down.

LYONS

LA DOUA, 466.8 metres; 1.5 kW.—**7.30 p.m.**, Radio-Gazette for Lyons and the South-East. 8.45, Concert relayed from the Conservatoire. Conductor: M. Charles Stroby. Soloist: M. Alexandre Braminov (Baritone), in Songs by Mozart, Respighi, Rubinstein, Rimsky-Korsakov, Vladimir Pohl and Glazunov. News after the Concert.

MADRID

ARANJUEZ, EAQ, 30.43 metres; 20 kW.—**10.30**, Popular Concert. 10.45, Radio Chronicle. 11.0, Popular Concert (contd.). 11.35, Sports and Bull-fighting Notes. 11.40, Light Music. 12 Midnight (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—**7.0 p.m.**, Chimes, Exchange Quotations, Soprano and Tenor Song Recital, and Request Gramophone Records. 8.15, News. 8.30 (approx.), Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**5.30 p.m.**, German Transmission: Reading by Anna Goldstein from her own Works, and Talk: The Treatment of Insanity in the Past and To-day. 6.0, See **Prague.** 9.15 (approx.), Close Down.

MOSCOW

TRADES UNION; 1,304 metres; 100 kW.—**4.25 p.m.**, The Swan Lake: Ballet (Tchaikovsky, relayed from the Grand Theatre. 8.0, Talk in English: The Work of a Railway Employee.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres**; and **Nürnberg, 239 metres.**—**4.0 p.m.**, Orchestral Concert. 5.15, Talk: People and Books. 5.45, Talk for Workers. 5.55, Time, Weather and Agricultural Notes. 6.5, Talk on the German Navy. 6.25, Variety Programme. The Station Choir and the Small Station Orchestra. Soloists: Gudrun Müller (Soprano), Ingeborg Ress (Coloratura Soprano), Roberg Hager (Baritone) and Edmund Samaro (Tenor). Prelude to Hansel and Gretel (Humperdinck); Two Ballads for Baritone (Loewe): (a) Fridericus Rex, (b) Tom the Rhymer; Schleierintermezzo from Mona Lisa (Schillings); Aria from Gugeline (Thuille); Prelude to As you like it (Zilcher); Waltz Scenes from Intermezzo (R. Strauss); Reading of Anecdotes about Actors, Singers and Famous Conductors (Noether); Selection from The Tales of Hoffmann (Offenbach). 7.45, Reading of a Speech on Patriotism (Fichte). 8.5, Symphony Concert, conducted by Hans A. Winter. Soloist: Emanuel Gatscher (Organ). Brandenburg Concerto No. 2 in F for Trumpet, Flute, Oboe, Violin and Strings (Bach); Concerto in Three Movements for Organ and String Orchestra (Fortner); Variations for Full Orchestra on a Theme by Mozart (Reger). 9.20, Time, Weather, News and Sports Notes. 9.45, Concert from **Frankfurt.** 11.0 (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres**; **Hamar, 574.7 metres**; **Notodden, 447.1 metres**; **Porsgrund, 452.2 metres**; and **Rjukan, 447.1 metres.**—**4.0 p.m.**, Concert by the Radio Ensemble. Trot de Cavalerie (Rubinstein); Boston, Asra (Königsberger); Barcarolle (Tchaikovsky); Scandinavian Intermezzo (Södermann); Gipsy Song (Borganov); Cavatina (Raff); Selection from Once upon a Time (Lange-Müller); Barcarolle (Murzilli); Two Melodies (Zerkovitz). 5.0, German Lesson. 5.30, Talk. 6.0, Announcements, Weather and News. 6.30, Educational Talk. 7.0, Time Signal. 7.1, Pianoforte Recital by Mme. Thora Bratt. 7.0, Recitations. 7.55, Jazz Melodies, sung by the Two Jazz Troubadours. 8.10, Political Review. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Light Music on Gramophone Records. 9.45 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

542 metres; 3 kW.—**7.0 p.m.**, Dopolavoro Notes, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 7.20, Light Music on Gramophone Records. In the interval at 7.30, Time Signal and Announcements. 7.45, Concert of Chamber Music. G. Scala (Pianoforte), E. Pollini (Mezzo-Soprano), Rosa Alfano (Harp) and S. Gallesi (Oboe). Pianoforte Solo: Theme with Variations (Amani); Mezzo-Soprano Solos: (a) Chi tardi arriva (Pieraccini), (b) E uno e due e tre (Pieraccini); Harp Solo: Autumn (Thomas); Concerto for Oboe

and Pianoforte (Prestini); Harp Solo: Ballad (Hasselmans); Mezzo Soprano Solos (Pieraccini): (a) E lo mio damo, (b) Beppino Rubacuori, (c) Fior di mortello; Pianoforte Solos: (a) Etude (Chopin), (b) Waltz (Chopin), (c) Polka (Glazunov). After the Concert, Light Music on Gramophone Records. **9.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and six-dot Signals).—**5.45 p.m.,** Le Journal Parlé. **7.20,** Weather Report. **7.30,** Concert arranged by the Composers' Society: String Quartet (Laty); Andante and Scherzo for Oboe, Bassoon and Pianoforte (Planel); Songs: Les heures du foyer (Plé), with the Composer at the Pianoforte; Sonata for Pianoforte and Violin (Chaptis). **9.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Hot Jazz on Gramophone Records. **7.30,** Sponsored Concert. **8.0,** Medical Talk. **8.5,** Talk on Aviation by Maurice Bourdet. **8.15,** Interval. **8.30,** Sponsored Concerts. **10.40,** News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Gramophone Records: Selection from The Miracle (Hué); Adagietto from the Fifth Symphony (Mahler). **8.0,** Press Review and Weather. **12 Noon,** Concert of Opera Music by the Radio Paris Orchestra: Overture: Tancred (Rossini); Selection from A Masked Ball (Verdi); Gramophone Records: Three Arias from Hamlet (Thomas); Selection from Patrie (Paladilhe); Overture: Sigurd (Reyer). **1.0 p.m.,** Exchange; News and Weather. **1.5,** 'Cello Recital by M. de Vlieger. **1.30,** Exchange. **1.35,** Ballet Music by the Radio Paris Orchestra: Ballet Music from Feramors (Rubinstein); Kermesse flamande from Milenka (Blockx). **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Report. **6.30,** Elementary English Lesson. **6.50,** Film Review. **7.0,** Review of New Books. **7.20,** Concert by the Radio Paris Orchestra: Overture: Joseph (Méhul); French Suite (Perilhou); Petites musiques (Schmitt). **7.45,** Commercial Prices and News. **7.50,** Gardening Talk. **8.0,** Literary and Dramatic Programme. In the intervals at **8.30,** News and Weather; at **8.40,** Review by Paul Reboux and at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.—8.15 p.m.,** U.S. Marine Band, from **New York. 9.0,** Work-a-Day Thoughts. **9.5,** Business News. **9.15,** Programme to be announced. **9.30,** Weather Report. **9.32,** Market Report. **9.45,** Blue Ridge Buddies. **9.57,** David Lawrence Dispatch. **9.58,** Programme Announcements. **10.0,** Programme to be announced. **10.30,** The Singing Lady, from **New York. 10.45,** Little Orphan Annie. **11.0,** Booth Tarkington's Maude and Cousin Bill, from **New York. 11.15,** Time Signal. **11.16,** Temperature Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.27,** Strange Facts. **11.29,** Weather Report. **11.30,** KDKA Orchestra. **11.45 to 3.30 a.m. (Tuesday), New York. 11.45,** To-day's News, by Lowell Thomas. **12.0 Midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m.,** Tastyeast Jesters. **12.30,** Five Star Theatre—Marx Brothers. **1.0,** Cliquot Club Eskimos. **1.30,** Time Signal and Don Carney—Talk for Dog Lovers. **1.45,** Phillips Lord in The Country Doctor. **2.0,** Sinclair Minstrels. **2.30,** Jack Frost Melody Moments. **3.0,** The Sizzlers. **3.15,** Vic and Sade. **3.30,** Bridge School of the Air, by E. Hall Downes. **3.45,** Samuel Di Primio (Tenor). **4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.13,** KDKA Artist Bulletin. **4.15,** Press Last Minute News. **4.20,** Smith Ballew and his Orchestra. **4.58,** KDKA Artist Bulletin. **5.0,** Hotel Bismarck Orchestra, from **New York. 5.30,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.,** See **Bratislava. 4.10,** Talk. **4.20,** Talk. **4.30,** Programme for Children. **4.50,** Light Music on Gramophone Records. **5.5,** Agricultural Programme. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission: Two Talks: (a) The Protection of Birds, (b) Films. **6.0,** Chimes. **6.1,** News Bulletin. **6.10,** English Lesson. **6.20,** Talk on the following Transmission. **6.30,** Relay from the National Theatre. Part I: A Painter's Downfall—Comic Opera in One Act (Zich); Part II: The Pig-headed Peasants —Comic Opera in One Act (Dvořák). In the Interval, Time Signal. **9.0,** Time Signal. **9.1,** News Bulletin. **9.15** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.—5.30 p.m.** (from **Lausanne**), German Lesson. **6.0** (from **Geneva**), Weather Forecast, News Bulletin and Announcements. **6.30,** (from **Lausanne**), Lesson for Farriers. **7.0** (from **Lausanne**), Concert of Light Music, relayed from the Bel-Air Metropole. **7.35** (from **Lausanne**), Mandoline and Guitar Concert. **8.0** (from **Lausanne**), Variety Programme. **9.0,** News Bulletin and Weather Forecast. **9.15** (from **Lausanne**), Arcis—Opéra-Ballet in One Act (Lagarde), relayed from the Municipal Theatre. **10.30** (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—**8.30 p.m.,** Weather Report. **8.40,** Musical Programme and Announcements. **9.0,** Chimes. **9.2,** News Bulletin. **9.30,** Reading. **10.0,** Popular Concert by the Station Quartet with Songs.

RIGA

525 metres; 15 kW.—**6.5 p.m.,** Concert, relayed from the Conservatoire. Introductory Talk by Professor J. Medins. Two Extracts from the String Quartet (Wihtols). Songs: Trio (Smetana). **7.30,** News. **8.0,** Weather and News. **8.10,** Popular Concert, conducted by J. Medins. **9.0** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres;** and **2RO, 25.4 metres.—6.45 a.m.,** Gymnastics. **7.15 to 7.30 a.m.,** Giornale Radio and Announcements. **11.30,** Weather and Light Music on Gramophone Records. **12 Noon,** Time and Announcements. **12.2 to 1.15 p.m.,** Concert from **Turin.** In the interval from **12.30 to 12.45,** Giornale Radio and Exchange. **3.45,** Children's Radio Review. **4.10,** Announcements. **4.15,** Exchange and Giornale Radio. **4.30,** Quartet Concert from the Royal Philharmonic Academy. **6.0 (Naples),** Shipping and Sports Notes. **6.10,** Agricultural and Dopolavoro Notes. **6.20,** Giornale Radio. **7.0,** Time, Announcements, and Light Music on Gramophone Records. **7.15,** Talk on Rembrandt. **7.30,** Sports Notes and Tourist Report. **7.45,** Sponsored Programme (to be announced). Talk in the interval. **9.0,** Concert of Light Music: Nuttate a mare (di Capua); Songs with Chorus: (a) Carmela mia (Cannio), (b) Torna a Surriento (de Curtis), (c) Albergo e' l'allegria (Gambardella); Songs with Chorus: (a) Coechie c'arraggiunate (Falvo), (b) Mamma mia che vo'sape (Nutile), (c) Carcioffolà (di Capua). Duets: (a) Luna nova (Costa), (b) I m'arricorde 'e te (de Curtis), (d) Amor consente (Mario); Song with Chorus, Napule belle (de Chiara); Catarì (Costa); Core 'ngrato (Cardillo); E tre fronne (Ricciardi); Maria Marì (Di Capua); Torna maggio (Di Capua); Song with Chorus, Ndringhete ndra (de Gregorio). **9.55,** News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.—7.30 p.m.,** Revolving Stage, from New York. **8.0,** Talk from New York. **8.15,** Antoinette Halstead (Contralto). **12 Midnight,** Boy Scout Programme. **12.15 a.m. (Tuesday),** Stock Reports. **12.30,** Gold Medal Band. **12.45 to 2.30, New York** Relay. **12.45,** The Goldbergs: Comedy Sketch. **1.0,** Soconyland Sketches. **1.30,** Voice of Firestone. **2.0,** A. and P. Gypsies. **2.30,** Buick Programme: Whiteman's Orchestra, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE, 244.1 metres;** and **BERNE, 245.9 metres.—11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40** (from **Basle**), Variety Music on Gramophone Records. **12 Noon** (from **Basle**), Talk: The Care of Swiss Children in Foreign Countries during the Holidays. **12.15 p.m.** (from **Basle**), Gramophone Concert (contd.). **12.35,** Weather and Exchange. **12.45 to 2.30,** Interval. **2.30** (from **Zürich**), Concert of Light Music by the Radio Orchestra. **3.0** (from **Basle**), Concert by the Radio Quartet. **4.0** (from **Basle**), Schubert and Schumann Song Recital on Gramophone Records. **4.30,** Weather. **4.35 to 5.30,** Interval. **5.30,** (from **Zürich**), Talk by Dr. Hermann Schneider on Romania. **6.0,** Time and Weather. **6.15** (from **Zürich**), Elementary English Lesson. **7.0** (from **Zürich**), Sixty Minutes—Radio Play (Friedrich Porges). **8.0,** Concert by the Radio Orchestra. **8.30,** Weather and News. **8.40,** Orchestral Concert, conducted by Hofmann. **9.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.—12 Noon,** Broadcast for Schools, relayed from **Uppsala (452.2 metres). 3.45,** Shorthorn Lesson. **4.0,** Weather. **4.5,** Accordion Music, relayed from **Ostersund. 4.40,** Reading. **5.0,** Variety Music on Gramophone Records. **5.55,** Parliamentary Review. **6.15,** Weather and News. **6.30,** Variety Programme. **7.15,** Talk from **Malmö (231 metres). 7.45,** Soloist Concert: Heinrich Albert (Guitar), Carl Achatz (Flute), Sven Blomquist (Violin), and Carl Christiansen ('Cello): Guitar Solos: (a) Minuet, Op. 11, No. 5 (Ferran Sors), (b) Impromptu (Kaspar Mertz), (c) Arabian Serenade (Tarrega); Quartet for Flute, Guitar, Violin, and 'Cello (Schubert). **8.15,** Running Commentary on the Wrestling Match, relayed from **Helsinki (368.1 metres). 9.0,** Light Music. **10.0** (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.,** Popular Music on Gramophone Records. **12.45 p.m.,** News Bulletin. **1.0,** Time Signal. **1.1,** Market Prices. **1.5,** Gramophone Concert of Variety Music. **2.0 to 5.0,** Interval. **5.0,** Orchestral Concert, conducted by M. Roskam. **6.0,** Literary Talk in French. **6.15,** Talk in German. **6.30,** Orchestral Concert, conducted by Maurice de Villers: Overture, Fidelio (Beethoven); Selection from The Magic Flute (Mozart); Moment musical (Schubert); Minuet (Schubert); First Suite from L'Arlésienne (Bizet); Dance macabre (Saint-Saëns); Marche joyeuse (Chabrier). **7.30,** Time Signal. **7.31,** News Bulletin. **7.45,** Gramophone Concert: Prelude in C Sharp; The Volga Boatmen; Indian Lament (Dvořák); Dimanche de Pâques sur la mer (Dupont); Scherzo (Tchaikovsky); Legend Wieniawsky); Ballet Music from The Firebird (Stravinsky). **8.20,** Lottery Results and Announcements. **8.30,** Chamber Music by the Cercle artistique de l'Est, relayed from **Nancy:** Sonata in A for Violin and Pianoforte (César Franck); Baritone Solos: (a) Liebestreu (Brahms), (b) L'âne blanc (Hüe); 'Cello Solos: Suite, No. 2 (Caix d'Hervelois-Feuillard); Recitations: (a) Non! Merci! from Cyrano de Bergerac (Rostand), (b) Le soir d'une bataille (de Lisle); Pianoforte Solos: (a) Dance (Debussy), (b) La Leggierezza (Liszt); Violin Solos: (a) Berceuse (Bachelet), (b) Gipsy Melodies (Sarasate); 'Cello Solo; Barcarolle nocturne (Bachelet).

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.—12.30 p.m.,** Concert from **Langenberg. 1.0,** Musical Programme, arranged by the Post Office. **1.15** (from **Karlsruhe**), Musical Programme arranged by the Post Office. **1.30,** Spanish Lesson. **2.0 to 2.30,** Elementary English Lesson. **4.0,** See **Munich. 5.15,** Time, Weather and Agricultural Notes. **5.25,** Talk: The Printing Trade in Germany. **5.50,** See **Frankfurt. 6.15,** Time and News. **6.30,** Variety Music on Gramophone Records. **6.45,** See **Berlin (Witzleben). 8.0,** Concert of Old Dance Music by the Radio Orchestra, conducted by Gustav Görlich. **9.0,** Time, News, Weather and Programme Announcements. **9.25,** Chess Lesson. **9.50** (approx.), Programme from **Frankfurt. 11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW. **6.0 p.m.,** News Bulletin. **6.15,** Ballet Music from Faust (Gounod). **6.30,** Solos. **6.45,** Operetta Music. **7.0,** Accordion Solos. **7.15,** News and Racing Results. **7.25,** Local News. **7.30,** Opera Music. **7.45,** Orchestral Music. **8.0,** Balalaika Music and Russian Songs: Gipsy Songs of the Caucasus; Moonlight; Minuet. **8.15,** Military Music. **8.30,** Viennese Music. **9.0,** Songs of Yesterday. **9.30,** Orchestral Music: Wedding March (Mendelssohn); La Honsarde (Ganne); Selection from Les cents vierges (Lecocq); Wedding Waltz (Lincke); La Habanera (Laparra). **10.0,** Airs from Opera: Arias from Siegfried (Wagner); Hérodiade (Massenet), and Sigurd (Reyer). **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Request Concert. **11.30 to 12 Midnight,** Programme in English by the I.B.C. **11.30,** I.B.C. Half Hour: Russian Potpourri (arr. Leonlieff); I heard a Thrush at Eve (Eberhardt); For you alone (Geehl); Waltz, Tales from the Vienna Woods (Joh. Strauss); Hungarian Dances (Brahms); La Danza (Rossini); Le Rêve from Manon (Massenet); Waltz, Wine, Woman and Song (Joh. Strauss). **11.57,** I.B.C. Goodnight Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Tuesday),** Popular Songs. **12.15,** Dance Music. **12.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**4.30 p.m.,** See **Rome.** After the Relay: Programme from **Turin. 6.0,** Variety Music on Gramophone Records. **6.20 to 6.35,** See **Turin. 6.35,** Orchestral Music from the Cafe Dance. **7.0** (approx.) till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.—4.30 p.m.,** See **Rome.** After the Concert: Giornale Radio, Agricultural and Dopolavoro Notes. **6.0,** Light Music on Gramophone Records. **6.20,** Giornale Radio. **6.30,** Time, Announcements, Tourist Report and Gramophone Records (contd.). **7.0,** Giornale Radio, Weather and Gramophone Records (contd.). **8.0,** Soprano and Baritone Song Recital, with Orchestral Accompaniment. **9.0,** A One-Act Comedy. After the Comedy, Popular Music on Gramophone Records. **10.0,** Giornale Radio.

VATICAN CITY

19.84 metres (Morning) and **50.26 metres** (Evening); 10 kW.—**10.0 to 10.15 a.m.,** Religious Information in Italian. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Gratz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 463.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.—3.45 p.m.,** Concert of Light Music by Karl Haupt and his Band. **4.50,** Dramatic Criticism. **5.10,** Talk: Books and Works of Reference in Connection with the Week's Talks. **5.20,** Art Talk: Raphael and his Predecessors. **5.45,** English Lesson. **6.10,** Time, Weather and Programme Announcements. **6.20,** Johann Strauss Concert by Josef Holzer and his Band. Soloist: Adele Kern (Soprano). Festmarsch; Waltz Song from Indigo; French Polka, L'Enfantillage; Favorit-Polka; Aria from Carnival in Rome; Prelude to the Third Act of Jabuka; Waltz, Wo die Zitronen blüh'n (arr. Genée-Riedinger); New Pizzicato Polka; Waltz, Frühlingsstimmen; Song from Jabuka; Czardas from Cagliostro; Song from The Queen's Kerchief; Quick Polka, Tritsch-Tratsch. **7.20,** Jakob Wassermann reads from his own Works. Introductory Talk by Dr. Wilhelm Bietak. **7.45,** Part Relay of the Max Reger Anniversary Concert from the Musikvereinssaal. The Vienna Symphony Orchestra conducted by Oswald Kabasta. Soloist: Franz Schütz (Organ). Choral Fantasia in D Flat, Op. 51, No. 2; Alle Menschen Müssen sterben; Variations and Fugue in E, Op. 100, on a Theme by Johann Adam Hiller. **8.45,** News, Weather and Announcements. **9.0,** Dance Music by Fred Clement and his Band, relayed from the Graben Café, with Song Refrains by Egon Gross.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Bugle Call from St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Popular Music on Gramophone Records. **12.20 p.m.,** Weather Forecast. **12.25 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.25,** Answers to Correspondence. **2.35,** Wireless Notes. **2.50,** Popular Music on Gramophone Records. **3.25,** Elementary French Lesson. **3.40,** Talk on Economics. **4.0,** Recital on Two Pianofortes relayed from **Cracow, 312.8 m.;** Suite; Scarlattiana (Casella); Concert Duet in the Style of Mozart (Busoni); Impromptu (Schumann-Reinecke); Scherzo from En blanc et Noir (Debussy); In the interval: Announcements. **4.35,** Song Recital by Mme. Szretter: Plaisir d'amour (Martini); Air from the Cantata, Also hat Gott die Welt geliebt (Bach); Air from The Magic Flute (Mozart); Waltz from Romeo and Juliet (Gounod); Melody (Bettinelli); Ballgeflüster (Meyer-Helmund). **4.55,** Programme Announcements. **5.0,** Educational Talk. **5.20,** Current Events. **5.25,** Light Music. **6.0,** Miscellaneous Items. **6.10,** Agricultural Talk. **6.30,** Topical Talk. **6.45,** Radio Journal. **7.0,** Don Carlos: Opera (Verdi), relayed from **Lwów, 381 m.** In the intervals: Sports Notes; Radio Journal and Answers to Correspondence. **10.15,** Aviation Weather Report and Police Notes. **10.20,** Dance Music.

WILNO

563 metres; 16 kW.—**5.55 p.m.,** Miscellaneous Announcements. **6.0,** Reading. **6.10 p.m.,** Miscellaneous Items. **6.15,** Sports Notes. **6.30,** See **Warsaw. 7.0,** Don Carlos —Opera (Verdi) relayed from **Lwów 788 (381 metres). 10.15,** See **Warsaw. 11.0** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

TUESDAY

MARCH THE TWENTY-FIRST

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Dr. John Baker: "Biology in Everyday Life." Song recital.
LONDON REGIONAL	"Seven Days' Sunshine," a musical cruise, by Henrik Ege. Military Band.
MIDLAND REGIONAL	Music of Rudolf Friml, orchestral concert.
NORTH REGIONAL	Concert from Houldsworth Hall, Manchester.
WEST REGIONAL	Concert by some of the winners at the Inter-Collegiate Eisteddfod of the University of Wales.
SCOTTISH REGIONAL	Instrumental concert. Lessons in Scottish dancing.
BELFAST	Operatic programme.

ABROAD

ATHLONE	8 p.m. Symphony concert from Dublin.
BERLIN	7 p.m. Opera: "Electra," by Richard Strauss.
EIFFEL TOWER	7.30 p.m. "Spring in Music," by the Radio Orchestra.
HAMBURG	7.20 p.m. Selections of opera music.
HILVERSUM	9.10 p.m. "Justice," a play by J. Galsworthy.
PRAGUE	7.10 p.m. Pianoforte recital by I. Stepanova-Kurzova.
RADIO PARIS	8.45 p.m. Chamber music.
STRASBOURG	6.30 p.m. Bach concert, conducted by M. de Villers.
TURIN	8 p.m. Opera: "Khovantchina" (Mussorgsky), from the Scala, Milan (relayed by Trieste and Milan).
WARSAW	7.25 p.m. The Station Orchestra, conducted by J. Oziminski.

ATHLONE

413 metres; 60 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Popular Music on Gramophone Records. **6.0,** Variety Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.10.** British Market Prices. **7.20,** News. **7.30,** Time Signal. **7.32,** Talk. **7.45,** Talk by Maura Laverty: Cradles of Patrician Lore (1). **8.0,** Concert by the Station Symphony Orchestra, conducted by Dr. Vincent O'Brien, relayed from the Mansion House, Dublin. Soloists: Renee Flynn (Soprano) and P. J. Duffy (Baritone). **10.30,** Time Signal, News, Weather, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.— 6.0, p.m., Trio Concert. In the interval: Announcements. **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations and Talk on Art. **8.0,** Light Music on Gramophone Records and News. **9.0,** Chimes from the Cathedral; Weather Forecast; Messages to Seamen; Exchange Quotations and Market Prices. **9.5,** Sponsored Programme. **9.30,** Dance Music by the Mozart Dance Orchestra. **10.15,** El Pájaro Azul (The Blue Bird): Musical Comedy in Two Acts (Rafael Millán). **11.0** (in an interval), News Bulletin. **12 Midnight** (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Report, Tourist Talk and Dopolavoro Announcements. **7.20,** Giornale Radio and Press Review. **7.30,** Time and Announcements. **7.35,** Choral Concert, conducted by Biagio Grimaldi: Tenebrae factae sunt for Four Voices (da Vittora); La romanesca for Four Voices (Ricordi); Coro dei gondolieri and Barcarolle for Four Voices from Marino Faliero (Donizetti); Cradle Song for Four Voices (Cremesini); Il grillo for Four Voices (Seghizzi); Il canto dei pescatori for Three Voices and Pianoforte (Bossi); Beatus vir—Motet for Solo Soprano, Four Voices, Pianoforte and String Orchestra (Rosso). **9.30,** Quintet Concert. **10.30,** Concert from the Grand Hotel, Moderno. Miscellaneous Notes in the intervals. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—4.0 p.m., Talk. **5.55,** Time and Programme Announcements. **6.0,** Talk. **6.30,** Popular Music on Gramophone Records. **7.0,** Concert, relayed from **Zagreb (307 metres). 9.0,** News, followed by Cigány Music, relayed from the Potrosacka Zadruga Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—12.45 p.m., News Bulletin. **1.0,** Gramophone Concert from **Berlin (Witzleben). 2.0,** Programme for Young People: A Dialogue between a Student and an Apprentice. **2.30,** Weather and Exchange. **2.45,** Alfred Hein reads from his own Works. **3.0,** Talks for Women. **3.30,** See **Leipzig. 4.10,** Talk: How much does the Preservation of Natural Beauty Spots owe to Hunting? **4.30,** Pianoforte Sonatas, Op. 49 and 79 (Beethoven). **5.0,** Talk: Individual and Collective Industry. **5.25,** The Understanding of Music—a Dialogue with a Radio Employee. **5.45,** An Introduction to the Opera Electra. **5.55,** Weather and Announcements. **6.0,** Book Day Programme for all German Stations, Speeches by German Authors. **7.0,** Electra—Opera in One Act (Richard Strauss). **9.0,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Concert from **Hamburg. 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—3.30 p.m., Recital on the Wurlitzer Organ, relayed from the Ufa-Palast in the Zoological Gardens: Selection from I Pagliacci (Leoncavallo); Moment musical (Schubert); Minuet (Mozart); Variations on Kuckuck, ruft's aus dem Wald (Reutter); Serenade (Toselli); Potpourri from Ein Lied für dich (Jurmann and Kaper). **4.0,** Song Recital by Karl Oskar Dittmer (Baritone); Kriegers Ahnung (Schubert); An eine Quelle (Schubert); Irrkraut (Gebel); Der Rosenstock (Gebel); Fussreise (Wolf); Wo find' ich Trost (Wolf). **4.25,** A Criticism of Albrecht Dürer's Picture Melancholie. **4.40,** Dialogue for the Younger Generation. **5.0,** Pianoforte Concerto in C Minor, Op. 115 (Kann), by Celeste Chop-Groenevelt and the Radio Orchestra. **5.30,** Technical Book Review. **5.55,** The Berlin Station informs its Listeners . . . **5.58,** Announcement. **6.0,** Book Day Programme for all German Stations: Speeches by German Authors. **7.0,** From North and South—Bunter Abend. In the interval at **7.45,** A Play in North German Dialect. **9.0,** Weather, News and Sports Notes. **9.30,** See **Hamburg. 11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—7.30 p.m., News and Exchange. **7.40,** Talk for Women. **7.55,** Lottery Results. **8.0,** Talk: Treatment for Asphyxiation and Drowning. **8.15,** News and Weather. **8.30,** Fauré Concert by the St. Gervais Choirs.

BRATISLAVA

279 metres; 14 kW.—5.25 p.m., Gramophone Records of Popular Music. **5.45,** Slovak Spelling Lesson. **6.0,** See **Prague. 6.10,** See **Brno. 6.50,** See **Prague. 7.35,** A Play in Three Acts. **8.35,** See **Prague. 9.15,** Cigány Band Concert, relayed from the Astoria Café. **10.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW., and GLEIWITZ, 253 metres.—12.5 p.m., Weather for Farmers. **12.10,** Gramophone Concert of Springtime Music. Choir: Song from The Seasons (Haydn). An den Frühling, Op. 23, No. 6 (Grieg); The Rustle of Spring (Sinding); Soprano Solo, Frühlingstraum (Schubert); Pianoforte Solo, Spring Song (Mendelssohn); Waltz, Die Fenster auf, der Lenz ist da (May-Joh. Strauss); Waltz, Frühlingsstimmen (Joh. Strauss). **12.45,** Time, Weather, News and Exchange. **1.5,** Gramophone Concert of Wedding Music: Overture, Figaro (Mozart); Wedding March from A Midsummer Night's Dream (Mendelssohn); Selection from Der Freischütz (Weber); Wedding Dance from The Wood Pigeon (Dvorak); A Wedding Day on Troldhaugen (Grieg); Wedding Music (Jensen); Bridal Song from Lohengrin (Wagner). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Market Prices. **2.40,** Folk Song Play for Children. **3.10,** Song and Pianoforte Recital by Hella Böer (Soprano) and Hella Leupert-Weiss (Pianoforte); Sonata in F Sharp Minor, Op. 2 (Brahms); Three Songs (Teichmüller): (a) Vor der himmlischen Tür, (b) Elfenarbeit, (c) Erden Kindleins Wiegenlied; Two Intermezzi (Brahms); Two Songs (Teichmüller): (a) Im Dämmer der Nacht, (b) Frau Nachtigall. **4.0,** Review of Books. **4.20,** Market Prices. **4.25,** Georg Langer reads from his own Works. **4.55,** Talk: Some Facts about the Upper Silesian Plebiscite. **5.20,** Orchestral Concert, conducted by Franz Marszalek. Soloist: Hellmuth Hallendorf (Tenor); March, Treuschwur (Rust); Waltz, Reisebilder aus dem Süden (Kraus); Oriental Scene, In the Harbour of Port Said (Armandola); Vibraphone Solo: An der Wiege (Richter); Ein Jahrmarkt im Dorfe (Bruhy). **6.0,** See **Berlin (Königs Wusterhausen). 7.0,** Weather and Market Prices. **7.5,** Concert from the Municipal Theatre, Beuthen: Overture, The Merry Wives of Windsor (Nicolai); Duet from The Merrry Wives of Windsor (Nicolai); Romance, Night (Rubinstein); Melodies from Der Freischütz (Weber); Roses from the South (Joh. Strauss). **8.0,** News Bulletin. **8.15,** Die schöne Galathée—Operetta in One Act (Suppé), relayed from the Municipal Theatre, Beuthen. **9.10,** Time and News. **9.30,** Talk: The Life of a Travelling Lecturer—Bitter-sweet Experiences. **9.45,** Theatre Talk. **10.0,** Concert from **Hamburg. 11.0** (approx.), Close Down.

BRNO

342 metres; 35 kW.—4.50 p.m., Talk on Gardening. **5.0,** Music Review. **5.15,** Talk for Workers. **5.25,** German Transmission: News, Educational Talk, and Agricultural Report. **6.0,** See **Prague. 6.10,** Variety Programme, with Music by the Station Orchestra and Soloists. **6.40,** Talk on Photography. **7.10,** See **Prague. 9.15,** See **Bratislava. 10.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—12.0 Noon, Bizet Concert on Gramophone Records: Prelude, Carmen; Overture, Patrie; Allegro Vivace from the Roma Suite; Suite from L'Arlesienne. **12.40 p.m.,** Pianoforte Recital: Papillons (Schumann); Seguidillas (Albeniz); Cordoba (Albeniz). **1.0,** Le Journal Parlé. **1.10,** Concert of Serenades and Aubades by the Small Station Orchestra, conducted by Leemans: Serenade (Mozart); Serenade (Schubert); Aubade (Delibes); Serenade (Widor); Aubade à Kiki (De Boeck); Serenade (Glazunov); Aubade Italienne (Tantrelle); Serenade (Godard); Aubade (d'Ambrosio). **5.0,** Concert of Flemish Music by the Radio Orchestra, conducted by Charles Walpot: Rubensmarsch (Benoit); Serenade and Ballet Music from Milenka (Block); Au Pays du Lin (Vandermeulen); Flemish Sketches (Brusselmans). **5.30,** Programme for Children. **6.5,** Literary Review. **6.15,** Quartet in F, Op. 3 (Haydn), on Gramophone Records. **6.30,** Sacred Music for Lent and Holy Week—Gramophone Concert. **7.15,** Film Review. **7.30,** Review for Women. **8.0,** Orchestral and Choral Concert relayed from Malmedy. **8.45,** Talk. **9.0,** Concert Relay (contd.). **10.0,** Le Journal Parlé. **10.10,** Request Gramophone Concert: Selection from El Capitan (Sousa); Song of Prince Galitsky from Prince Igor (Borodin); Waltz from Mireille (Gounod); Nocturne from La Navarraise (Massenet); Funeral March of a Marionette (Gounod); Scarf Dance (Chaminade); Minuet and March from Le Bourgeois Gentilhomme (R. Strauss); Nights in the Gardens of Spain (Falla). **10.55,** Christus Vincit (Liszt).

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Oberon (Weber); Spanish Serenade (Laurys); Ballet Music from Henry VIII (Saint-Saëns); Gramophone Record, Selection from Die Fledermaus (Joh. Strauss); Foxtrot Fantasia on The Gipsy Baron (Kochmann); Waltz (Kálmán); Selection from Tip-Toes (Gershwin). **1.0 p.m.,** Journal Parlé. **1.10,** Gramophone Concert: Waltz, Frühlingsstimmen (Joh. Strauss); Aubade printanière (Lacombe); Gavotte, Ronde printanière (Wimmer); Waltz, Im Zeichen des Frühlings (Lehár); Spring Song (Gounod); Waltz, Idylle printanière (Latorre); Lentelust (Lebrun); O, Frühling wie bist du so schön (Lincke); An den Frühling (Grieg); Walter's Prize Song from The Mastersingers (Wagner); Soirée printanière (Waldteufel); Children of Spring (Waldteufel); Matinée printanière (Naef). **5.0,** Gramophone Concert: Frühlingserwachen (Bach); Selection from A Midsummer Night's Dream (Mendelssohn); Frühlingsnacht (Schumann-Liszt); Air from Rodelinda (Handel); Spring Song (Mendelssohn); Suite, Gli uccelli (Respighi). **5.45,** Programme for Children. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans; Soloist, M. Wigy (Violin): Spring March (Filipucci); Frühlingsstimme (Strauss); An den Frühling (Grieg); Rustle of Spring (Sinding); Violin Solo, Le printemps (Millhaud); Spring Song (Mendelssohn); Suite, Scènes printanières (De Herve); Spring, from Hamlet (Thomas). **7.15,** Talk. **7.30,** Journal Parlé. **8.0,** Beethoven and Liszt Concert by the Symphony Orchestra, conducted by Jean Kumps; Soloist, M. Ardenois (Pianoforte); Part I (Beethoven), Leonora Overture No. 3; Pianoforte Solo, Moonlight Sonata in D Sharp Minor; First Symphony; Part II (Liszt), Les préludes; Hungarian Fantasia for Pianoforte and Orchestra; Mephisto-Walzer. In the interval, Le printemps—Radio Play (Suls). **10.0,** Journal Parlé. **10.10,** Dance Music on Gramophone Records.

BUCHAREST

394 metres; 12 kW.—4.0 p.m., Light Music and Romanian Music by the Motoi Orchestra. **5.0,** News and Time Signal. **5.10,** Talk. **5.25,** Light Music (contd.). **6.0,** Talk: The Beginnings of Romanian Literature. **6.40,** Popular Music on Gramophone Records. **7.0,** Eight Songs (Telcki) sung by Mme. Ghibu. **7.20,** Concert by the Station Orchestra: Overture, St. Paul (Mendelssohn); Symphonic Variations for 'Cello and Orchestra (Boëllmann); Symphonic Pieces (Pierné-teanu). **8.0,** Talk. **8.15,** Concert (contd.): Poetic Suite (Dvorák). **8.45,** News.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on **840 metres** from **6.30 p.m.** till Close Down. **4.0 p.m.,** Concert of Ballet Music, conducted by T. Polgar: Ballet Music from The Queen of Sheba (Goldmark); Suite from Sylvia (Delibes); Ballet Music from La Gioconda (Ponchielli); Ballet Music from Die Puppenfée (Bayer). **5.0,** French Lesson. **5.30,** Violin and Pianoforte Recital: Violin Sonata (Tartini); Hebrew Melody (Schulz-Auer); Song (Rimsky-Korsakov); Prelude and Allegro (Pugnani-Kreisler); Serenade (Plotenyi); Caprices in B Minor and E Minor (Paganini). **6.0,** Talk. **6.30,** Concert of Cigány Music. **7.15,** Review of Foreign Affairs. **7.30,** Caruso—A Radio Play. **8.20,** News Bulletin. **9.35** (approx.), Pianoforte Recital, followed by Dance Music from the Hotel Bellevue.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m., Time Signal and Chimes from the Town Hall. **11.2,** Concert by the Harald Andersen String Ensemble, relayed from the Bellevue Strandhotel. **1.0 to 2.0,** Interval. **2.0,** Orchestral Concert, conducted by Emil Reesen: Overture, Don Pasquale (Donizetti); Selection from La bontique fantasque (Rossini-Respighi); Waltz, Immortellen (Gungl); Serenade in E Minor for Strings (Elgar); Toréador et Andalonse from Le bal costumé (Rubinstein); Overture, Der Göttergatte (Lehár); Waltz in A (Dvorák); Dances from Lakmé (Delibes); Fantasia on Russian Folk Songs, Kamarinskaya (Glinka); Norwegian Rhapsody No. 2 (Svendsen). In the interval at **2.45,** Reading. **4.0,** Programme for Children. **4.40,** Exchange and Fish Market Prices. **4.50,** Talk: The Care of the Skin. **5.20,** German Lesson. **5.50,** Weather. **6.0,** News. **6.15,** Time Signal. **6.30,** Talk. **7.0,** Town Hall Chimes. **7.1,** Concert of Old Danish Dance Music by the Radio Orchestra, conducted by Launy Gröndahl. **7.50,** The Animals' Revolt—One-Act Play (Sladen Smith) arranged for Radio. **9.20,** Schumann Pianoforte Recital by Folmer Jensen: Waldszenen, Op. 82. **8.40,** Talk: A Visit to a Ship's Wharf. **9.10,** News. **9.25,** String Quartet in D (Franck) by the Brenning-Bache Quartet. **10.0,** Dance Music by the Tommy Boston Band, relayed from the Lodberg Restaurant. In the interval at **11.0,** Time Signal and Chimes from the Town Hall. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**6.0 to 7.0,** Programme in English by the I.B.C.; C. Danvers Walker, B. McNabb, and F. Lampitig announcing. **6.0,** Concert for Worthing Listeners: Stephanie Gavotte (Czibulka); Captain Mac (Sanderson); The Driver of the 8.15 (Longstaffe); Selection from The Beggar's Opera (Gay); The Sea Road (Haydn); I travel the Road (Parsons); Serenade (Heykens). **6.30,** Concert for Bognor Listeners: Xylophone Solos: Jovial Jasper (Green); Aeroplane Polka (Gaston); Tarantella (Byng); Dance of the Raindrops (Reeves); Xylophonia (Green); Dance of the Marionettes (Gaston); Carnival of Venice (arr. Gaston); Crazy Pirouette (Frisk). **7.0,** Programme in French. **10.0** till Close Down. Programme in English by the I.B.C. **10.0,** Dance Music: I'm sailing on a Sunbeam; I'm in Love with you; She's my Secret Passion; You brought a new Kind of Love to me; Miss Wonderful; O.K. Baby; The Song of the Flame; Blonde Women; Hush-a-bye, Baby; Puttin' on the Ritz; Should I? Too wonderful for Words; Bunkey-doodle-I-doh; Broadway Melody; Lady Divine. **11.0,** Spanish Music: Orchestra: Old Spanish Song (Aubert). Accordion Band: Selection from Carmen (Bizet); Orchestra: Serenata (Moszkowsky); Handbell Solo: In Sunny Seville (Whitlock); Accordion Solo: Waltz, Muella (Chabrier); Toreador Song from Carmen (Bizet); Xylophone Solo: Spanish Song (Moszkowsky). **11.30,** Songs: Annie Laurie (Traditional); The Drum Major (Newton); Loch Lomond (Traditional); The Gay Highway (Drummond); Maire my Girl (Aitken); Stonecracker John (Coates); Vale (Kennedy Russell); The Wheeltapper's Song (Chester). **12 Midnight,** Variety Concert: You used to be my Sweetheart; Laughs, or Love à la Mode; The Black Forest Chiming Clock; They all make Love but me; Laughing Gigolo; Paradise Alley; Hooch, but she was a Bonny Wee Lass. **12.30 a.m. (Wednesday),** Light Music: Selection from Lilac Time (Schubert); March, St. Patrick's Day (Brase); Way down in Georgia (Traditional); Pianoforte Solo: Just Humming along; Old King Cole; Mother Machree; Orchestra: Me and the Man in the Moon (Monaco). **1.0,** Concertina Solos: Bonnie Lass o' bon Accord; Hornpipe Medley (arr. Dale); The Road to the Isles (Fraser); Orange and Blue (Dale); Irish Medley (arr. Dale); Lopeziana (Alter); Scottish Reels (arr. Dale); Marilyn (Alter). **1.30,** Popular Songs: Airman, Airman (Hargreaves); Girl Friend of a Boy Friend of Mine (Donaldson); Singin' in the Bath Tub (Magidson); My Baby just cares for me (Donaldson); I still believe in you (Akst); I took Jane for a walk in the Rain (Hargreaves); I've never seen a Smile like yours (Johnson); We must all pull together (Weston). **2.0,** Light Music: Let that be a Lesson to you; Leave the Rest to old Man Moon; Let me be your Carmen for To-night; Pagan Moon; Speedway Sam; Strangers; Dance of the Cuckoos; Paradise; The old Kitchen Kettle; Same old Moon; At Eventide; Through that open Window; The Gag Song; Sing a new Song. **2.57,** I.B.C. Goodnight Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW.; **CASSEL, 245.9 metres;** and **TRIER, 259.3 metres.—12.30 p.m.,** Concert from **Langenberg. 1.0,** News. **1.10,** Sponsored Concert. **2.0,** Weather Report. **2.10,** Time and Exchange. **2.20 to 2.50,** Talks for the Housewife. **3.50,** Market Prices. **4.0,** See **Langenberg. 5.15,** Exchange. **5.25,** Talk: The Silesian Plebiscite. **5.50,** Time. Programme Announcements. Weather and Exchange. **6.0,** See **Berlin (Königs Wusterhausen). 7.0,** See **Stuttgart. 8.30,** Reading: Anakreon (Paul Ernst). **8.45,** Hans Heyck discusses his Works. **9.0,** Time, News, Weather and Sports Notes. **9.45,** See **Stuttgart. 11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.—6.0 p.m.** (from **Hanover**), Agricultural Talk. **6.25,** Weather Report. **6.30,** Choral and Orchestral Concert arranged by the Hamburg Fire Brigade, relayed from the Conventgarten. Soloists: Aida Montes and Stefan Schwer (Songs). Torch Dance in B Flat (Meyerbeer); Choir: (a) Durch junges Grün (Clarus), (b) Am sonnigen Rhein (Uthmann); Waltz from Der Rosenkavalier (R. Strauss); Songs: (a) Heimliche Aufforderung (R. Strauss), (b) Ständchen (R. Strauss); Der Lenz (Hildach); Songs: (a) Der Hidalgo (Schumann), (b) Tell me tonight (Spoliansky); Blumenkorso auf der Alster (Sylvar). **7.20,** Concert of Opera Music by Haydn, Marschner, Cherubini and Rossini. The Station Orchestra, conducted by Adolf Seeker. Soloists: Hans Tessmer, Erna Kroll-Lange, Gertrud Schnitzer, Herbert Ernst Groh and Bernhard Jakschtat. **8.15,** See **Berlin (Witzleben). 9.0,** Time and News. **9.20,** Topical Talk. **9.30,** The Hamburg Composers' Competition, relayed from the Café Wallhof. In the interval at **10.20,** Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW.; and **DANZIG, 453.2 metres.—12.5 p.m.,** Gramophone Concert: Wem Gott will rechte Gunst erweisen (Mendelssohn); Ein wandernder Geselle (Kienzl); March, Hamburg bleibt Hamburg (Vollstedt); Elegy (Sinding); Melody (Coublier); Senta's Ballad, A Ship the restless Ocean sweeps, from The Flying Dutchman (Wagner); Selection from The Girl of the Golden West (Puccini); In the Tea Gardens of Ceylon (Yoshitomo); Selection from L'Africaine (Meyerbeer); Arabian Dance (Grieg); Sei mir gegrüsst, du mein schönes Sorrent (Waldmann); Sicilliano (Jessel); Neapolitan Folk Song (di Capua); Innsbruck, ich muss dich lassen (Isaack); Folk Song, Von meinen Bergen muss ich scheiden; Die Deutschmeister san do (Sioly); Weaner Madeln (Ziehrer); Wien, du Stadt der Lieder (Stolz); Nach der Heimat möcht ich wieder (Kromer); Hie guet Brandenburg allewege (Henrion). In the interval at **12.20,** News. **1.30,** Programme arranged by the Post Office, with Gramophone Records. **2.0,** Agricultural Prices and Exchange. **2.30,** Programme for Children. **3.0** (from **Danzig**), Police Band Concert, conducted by Ernst Sticheritz: March, Märkische Kolonnen (Knoch); Overture, Le roi d'Yvetot (Adam); Selection from Tiefland (d'Albert); Spanish Rhapsody (Richardy); Wir spielen Soldat (Eilenberg); Erotica (Grieg); Ich liebe dich (Grieg); Potpourri, Durch Webers Zauberwald (Urbach); Two Marches with Fanfares: (a) Cuirassiers' March (Simon), (b) Army March No. 40, Prince August (Simon); Potpourri, Wiener Spaziergänge (Komzak). **4.45,** Medical Talk: Theories Concerning Sleep. **5.15,** Agricultural Prices. **5.20,** Ice Report. **5.30,** Talk: Training to be a Continuation School Teacher. **6.0,** Book Day Programme for all German Stations; Speeches by German Authors. **7.0 to 9.20,** See **Langenberg. 9.20,** Weather, News and Sports Notes.

HILVERSUM

(Announced **HUIZEN**); **296.1 metres;** 20 kW; (7 kW up to **4.40 p.m.**).—**11.55 a.m.,** till Close Down, Programme of the Catholic Radio Society (K.R.O). **11.55 a.m.,** Concert by the K.R.O. Boys, conducted by P. Lustenhouwer. Soloist: J. Mossel (Songs). **1.25 p.m.,** Interval. **1.40,** Talk. **2.15,** Programme for Women. **2.40,** Dressmaking Lesson. **3.40,** Programme of the H.I.R.O. **4.50,** Concert by the K.R.O. Sextet. The Torch Dance of the Brides of Kashmir (Rubinstein); Chanson triste (Tschaikovsky); Eine kleine Nachtmusik (Mozart); Minuet (Bolzoni); Waltz (Dvorak). **5.30,** Recitations. **5.50,** Sextet Concert (contd.): Ein Immortellenkranz auf das Grab Lortzings (Rosenkranz); Serenade (Rachmaninov). **6.10,** Esperanto Lesson. **6.30,** Sextet Concert (contd.): Im Wandel der Zeiten (Morena); A Wedding Day on Troldhaugen (Grieg). **6.50,** Popular Music on Gramophone Records. **7.10,** Police Report. **7.25,** Talk. **7.40,** Sacred Music and Meditation on the Passion. **9.10,** News. **9.15,** Concert by the K.R.O. Orchestra and Choir: Overture, Fidelio (Beethoven); Choir (a) Ave Verum (Mozart), (b) Zigeunerleben, Op. 29 (Schumann); Piet Hein (van Anrooy); Choir: Two Songs; Gramophone Records; Prelude to The Loreley (Bruch); Ballet Music from Feramors (Rubinstein); Serenade (Pierné). **10.40,** News. **10.45** (approx.), Concert (contd.): Choir: The Blue Danube (Joh. Strauss); Overture, Die Fledermaus (Joh. Strauss).

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM**; **1,875 metres;** 8.5 kW.—**11.40 a.m.** till Close Down. Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.40 a.m.,** Time Signal. **11.41,** Concert of Light Music, with Gramophone Interludes. **1.55,** Recital on Two Pianofortes by Jacques Hamel and Egbert Veen: Garden Melody (Schumann); Military March No. 2 (Schubert); Rondo No. 2 (Weber); Sonata in D Minor (Mozart). **2.40,** Dressmaking Lesson. **3.40,** Violin Recital by Boris Lensky: Concert Piece in D (Schubert); Ave Maria (Schubert-Wilhelmy); Largo (Handel); Die Launenhafte (Hauser). **4.10,** Concert by a Children's Choir, conducted by Jacob Hamel. **4.40,** Talks for Children. **5.10,** Two Talks. **5.55,** Gramophone Records and Hawaiian Music. **7.10,** English Lesson. **7.40,** Time Signal. **7.41,** News Bulletin. **7.45,** Concert by the Wireless Orchestra, conducted by Nico Treep: Frühlingseinzug (v. Blon); Overture, Rund um die Liebe (O. Straus); The Village Bride (Landry); Die Lotosblume (Lincke); Frühlingsbotschaft (Fucik); Nachtigall im Fliederbusch (Krome); Songs by the Harmony Kings; Waldteufelreigen (Weninger); In the Harbour of Port Said (Armandola); Czardas, Villany (Lindsay-Theimer); Dance of the Merry Mascots (Ketelbey); March, Im Zigeunerlager (Oscheit). **9.10,** Justice—Play (John Galsworthy), arranged for Radio. **9.40,** Concert by the Wireless Orchestra, conducted by Nico Treep: Overture, Venus am Erden (Lincke); Waltz (Johann Strauss); Gipsy March (Lacome); Potpourri, Servus Wien (Dostal); On the Quarter Deck (Alford); Two Songs (Jacobs Bond); March Songs (Weninger). **10.40,** News Bulletin. **10.50,** Concert of Light Music. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.0 p.m.,** Talk: The Poems of Adam Asnyk in the Light of New Criticism. **6.15,** Announcements and Popular Music on Gramophone Records. **6.25,** Sports Notes. **6.30 to 10.0,** See **Warsaw. 10.0,** Dance Music, relayed from the Café Monopol.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Prague.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres; 40 kW.; and **HELSINKI, 368.1 metres.—6.30 p.m.,** Orchestral Concert, conducted by Toivo Haapanen. Soloist: Arno Grantot (Violin). Finnish Rhapsody (Linnala); Cradle Song (Klami); Spanish Symphony (Lalo); Suite from A Midsummer Night's Dream (Mendelssohn). **7.45,** News in Finnish. **8.0,** News in Swedish.

LANGENBERG

473 metres; 60 kW.—**12 Noon,** Concert, conducted by Wolf: March, Mit Feuer (Gutzeit); Ovefture, Si j'étais Roi (Adam); Little Suite No. 3 (Micheli); Waltz, La Hussarde (Ganne); Selection from William Tell (Rossini); Intermezzo, Entry of the Spring Flowers (Kockert); Intermezzo, Zigeuner (Königsberger); Selection from Frau Luna (Lincke). In the interval at **1.0** (approx.), News. **1.30,** Sponsored Programme, with Gramophone Records. **2.30,** Economic Notes and Time. **2.50,** Songs for Children. **3.20,** Notes on the Broadcasts for Schools. **3.30,** Talk: The Teaching of Geography. **4.0,** Orchestral Concert, conducted by Kühn. Soloists: Therese Pott and Egbert Grape (Pianoforte). Concerto in C Minor for Two Pianofortes and Orchestra (Bach); Concerto grosso (Scarlatti); Variations on an Original Theme for Two Pianofortes (Unger); Symphonic Poem, Sintram (Templeton-Strong). **5.15,** Italian Lesson. **5.45,** Weather, Time, Economic Notes and Sports Results. **6.0,** Book Day Programme for all German Stations—The Nation and Books. **7.0,** News. **7.5,** Frühling lässt sein blaues Band—Spring Programme of Poems by Goethe, Eichendorff, Mörike, and v. Hatzfeld, and Songs by Schumann, Schubert, and Wolf. **7.30,** Mozart Concert by the Station Orchestra, conducted by Kühn. Serenade in D, No. 6; Cassation in G. **8.20,** Bastien and Bastienne—Musical Play in One Act (Mozart). **9.0,** News Bulletin.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN, 319 metres.—11.5 a.m.,** Wind Instrument Concert on Gramophone Records. **12 Noon,** News, Weather, Snow Report, and Time. **12.15 p.m.,** Concert of Italian Music on Gramophone Records; Exchange Quotations after the Concert. **1.0,** Talk for the Unemployed. **2.0,** Review of Books for Young People. **2.35,** Exchange and Market Prices. **3.0,** Talk: The German Population in Roumania. **3.30,** Bach Concert, relayed from Bach's House, Eisenach. Edith von Voigtländer (Violin) and Maendler-Schramm (Harpsichord); Introductory Talk by the Curator; Fuga canonica for Violin and Harpsichord, from the Musikalisches Opfer; Italian Concerto for Harpsichord; Sonata in E for Violin and Harpsichord. **4.30,** Weather and Time. **4.50,** Exchange Quotations. **5.0,** Talk for Women. **5.25,** French Lesson. **5.50,** Talk on the Gewandhaus Concert of the 23rd March. **6.0,** See **Berlin (Königs Wusterhausen). 7.0,** Concert by the Station Orchestra, conducted by Willy Steffen: Contredanse (Beethoven); Pastorale, Op. 29 (Bose); Suite, New Music in Old Style (Heinrich Malz): (a) Air, (b) Gavotte, (c) Minuet; Waltz, Am Wörther See (Koschat); Pikante Blätter (Komzak); Hoch Heidecksburg (Herzer)—Piedmontese Dance in G (Singaglia); Walzerflut (Fetras); Gang durch den Märchenwald (Meyer-Helmund); Germania March (Keil). **8.0** News Bulletin. **8.5,** Economic Questions of the Day. **8.10,** Gemütsvolle Reise zur Welttrompete—Play (Jean Paul), arranged for the Radio by Günther Birkenfeld. **9.15,** News Bulletin. **9.30** (approx.), Concert of Light Music and Dance Music on Gramophone Records: Der Schwalbe Gruss (Schrammel); Trinken und Lieben (Bakowiano); Waltz, Im Zeichen des Frühlings (Lehar); Mazurka (Scheidegger); Guckerl-Polka (Scheidegger); Waltz, Die Fenster auf, der Lenz ist da (May); Songs: (a) Sei mir gut, schöne Marietta, (b) Sonne wird scheinen; Polka, Feuerfest (Jos. Strauss); Potpourri, Einfach fabelhaft (Dostal); Selection from Wild Violets (Stolz); Idyllen-Walzer (Joh. Strauss); Holde Jugendzeit (Honigmann); Heut, Nacht sing ich nur für dich (Brauesu); Aranjuez (José d'Alba); Dunkelrote Rosen (Fall). **10.30** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

574.7 metres; 7 kW.—**5.30 p.m.,** German Lesson. **6.0,** Talk. **6.30,** Talk: The Heroes of Our Times. **7.0,** Chamber Music. **8.0,** Programme relayed from the Café Zvezda. **9.0,** Time, News, and Light Music.

LWOW

381 metres; 16 kW.—**6.15 p.m.,** Miscellaneous Items. **6.30,** See **Warsaw. 9.15,** Relay of Foreign Station. **9.55,** See **Warsaw. 10.30** (approx.), Close Down.

LYONS

LA DOUA, 466.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South-East. **8.30,** Fauré Concert, relayed from Paris. News after the Concert.

MADRID

ARANJUEZ, EAQ, 30.43 metres; 20 kW.—**10.30 p.m.,** Concert of Popular Music. **10.45,** Radio Chronicle. **11.0,** Concert (contd.). **11.35,** Talk. **11.40,** Light Music. **12.0 Midnight** (approx.), Close Down.

MADRID

UNION RADIO; Call EAJ7; 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, and Request Gramophone Records. **7.30** (in the interval), Talk. **8.15,** News and Political Review. **8.30 to 9.0,** Interval. **9.0,** Linguaphone English Lesson. **9.30,** Chimes, Time, and Political Review. **9.45** (approx.), The Valkyries—Opera (Wagner)—Concert Version, on Gramophone Records. **11.45,** News Bulletin. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**3.10 p.m.,** Orchestral Concert, conducted by J. Plichta. **4.10,** See **Prague. 4.50,** See **Brno. 5.0,** Talk on Viktor Kamil Jerabek. **5.15,** See **Prague. 5.25,** See **Brno. 6.0,** See **Prague. 6.10,** See **Brno. 6.40** (approx.), See **Prague. 9.15,** See **Bratislava. 10.0** (approx.), Close Down.

MOSCOW

TRADES UNION; 1,304 metres; 100 kW.—**4.30 p.m.,** Literary Programme. **8.0,** Talk in French: The Work of a Railway Employee.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres;** and **Nürnberg, 239 metres.—3.45 p.m.,** Orchestral Concert conducted by Ernst Hagel: Comedy Overture (Aletter); Selection from La Favorita (Donizetti); Oriental Scene, The Entry of Haroun al Raschid (Thon); Swabian Peasant Waltz (Krome); Feux (Demaret); Potpourri, Eisblumen (Lenschner); Spanish March, Cadiz (Valverde). **4.45,** Book Day Programme—A visit to a Children's Reading Room. **5.5,** Talk: The 1933 Matriculation Student and the Higher Professions. **5.25** (from **Nürnberg**), Reading: A Year—Paul Memorial (Dr. August Caselmann). **5.45,** Time, Weather and Agricultural News. **6.0,** See **Berlin (Witzleben). 7.0,** Variety Programme arranged by the Tramways. **8.15,** Franz Braumann reads from his own Poems. **8.25,** Pianoforte Sonata in C, Op. 1 (Brahms), by Walter Lampe. **9.0,** An Interview with the Belgian Financial Expert, Emile Francqui. **9.20,** Time, Weather, News and Sports Notes. **9.45,** Der Winter ist vergangen, ich seh' des Maien Schein. Programme of Spring Songs and Legends, collected by Alois Johannes Lippl.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 452.2 metres;** and **Rjukan, 447.1 metres.—4.0 p.m.,** Relay of European Stations. **5.0,** Two Talks for Housewives. **5.45,** Accordion Music. **6.0,** Announcements, Weather and News. **6.30,** English Lesson. **7.0,** Talk: Some Facts from the History of the Norwegian People. **7.30,**

MARCH 21st TUESDAY continued

Concert by the Station Orchestra: Concerto grosso in D Minor for Two Violins, 'Cello, Pianoforte and Strings (Vivaldi); Le tombeau de Couperin (Ravel); Zambra Granadina (Albeniz); Adagio (Kodaly); Guitar (Lalo); Serenade (Graener); Celtic Suite (Foulds); Rhapsody from Prince Igor (Borodin). 8.40, Weather and News. 9.0, Topical Talk. 9.35, Relay of European Stations. 11.0 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

542 metres; 3 kW.—**7.0 p.m.,** Dopolavoro Notes, Tourist Talk, Agricultural Talk and Giornale Radio. 7.20, Popular Music on Gramophone Records. In an interval at 7.30, Time Signal and Announcements. 7.45, Concert of Opera Music. Conductor: Fortunato Russo. In the intervals: Talk and Art Notes. After the Concert, Light Music on Gramophone Records. 9.55, News Bulletin.

PARIS

EIFFEL TOWER; Call FLE; 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and G-dot Signals). **5.45 p.m.,** Le Journal Parlé. 7.20, Weather Report. 7.30, Spring in Music—Concert by the Radio Orchestra, conducted by Edouard Flament: Marche du Printemps (Landry); Spring Suite (Wesly); Waltz, Frühlingsstimmen (Joh. Strauss); Spring Song (Mendelssohn); Violin Solo, Le réveil des fleurs (Flament); Rustle of Spring (Sinding); Beneath the Spring Rain (Akimenko); Waltz (Oscar Straus). 8.30, Programme to be Announced.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. 7.0, Sponsored Concert with Gramophone Records. 8.0, Film Talk. 8.5, Legal Talk. 8.15, Interval. 8.30, Concert of Spring Music by the Station Symphony Orchestra: Matinée de printemps (Marty); Nuit de printemps (Chaplis); Printemps (Lacôme); Frühlingsstimmen (Joh. Strauss); Au printemps (Gounod); Printemps nouveau (Vidal); Spring Song (Mendelssohn); Aubade printanière (Lacôme); An den Frühling (Grieg); Song, Voici que de printemps (Debussy); Waltz, Amour et printemps (Waldteufel); Printemps sur la mer (Flament); Rondes de printemps (Debussy). 10.30, News.

PARIS

RADIO PARIS, Call CFR. 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Gramophone Records: Tzigane (Ravel); Fantasia for Flute (Hué). 8.0, Press Review and Weather. **12 Noon,** Concert by the Krettly Orchestra: Overture, Si j'étais roi (Adam); Selection from Manon (Massenet); Prelude to L'Enfant Roi (Bruneau); Overture, Véronique (Messager); Two Songs from Miarka (Georges); Selection from La Bohême (Puccini); Selection from Le Roi malgré lui (Chabrier); Selection from La Légende du Point d'Argentan (Fourdrain); Selection from Pelléas et Mélisande (Fauré); Chanson à Bercer (Schmitt); Traversée heureuse (Schmitt); Marche écossaise (Debussy); Cortège des éléphants sacrés (Delmas). In the intervals at **1.0 p.m.,** Exchange, News and Weather, and at **1.30,** Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 4.30, Elementary English Lesson. 6.10, Agricultural Talk. 6.30, Advanced English Lesson. 6.50, Theatre Review. 7.5, Talk on Art. 7.20, Concert by the Krettly Orchestra: Chant sans Paroles (Tchaikovsky); Minuet (Boccherini); Canzonetta (Friml-Letorye); Roses of Picardy (Haydn-Wood); Menuet pompeux (Ganne); Suite on Popular Hungarian Airs (Leoni). 7.45, Commercial Prices, News and Review of the British Press. 8.0, Gramophone Concert: Les Cochons Roses and Les deux bécasses, by Signoret; Finale from Act II of Marietta (O. Straus), by Yvonne Printemps and Sacha Guitry; Two Dialogues (Koval), by Koval and Gaby Benda: (a) Monsieur, (b) Monsieur et Madame essayent l'auto neuve; Tapage nocturne and Chez le dentiste (Willekens and Léonne), by Mme. Leonne and M. Francis. 8.30, News and Weather. 8.40, Review by Zamacoïs. 8.45, Chamber Music Concert. Soloists: M. Cahuzac (Clarinet), Alys Lautemann (Harp), and Serge Tenenbaum (Violin). Quintet with Clarinet (Mozart); Harp Solos: (a) Largo (Bach) Grandjany, (b) Rhapsody (Vierne), (c) Marine (Briez); Violin Solos: (a) Lotus Land (Scott), (b) The Fountains of Arethusa (Szymanovski); (c) La Ronde des Lutins (Bazzini); Two Pieces for Clarinet and Harp from French Divertissements (Migot); Harp and Clarinet Duets (Migot): (a) Prelude, (b) Estampe; Quartet, with Pianoforte (Ducasse). In the interval at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.,** Work-a-day Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather Report. 9.31, Market Reports. 9.45, Johnny Muskrat. 9.50, David Lawrence Dispatch. 9.58, Programme Announcements. 10.0, Programme to be announced. 10.15, Adventures of Dr. Dolittle, from **New York.** 10.30, The Singing Lady, from **New York.** 10.45, Little Orphan Annie. 11.0, Booth Tarkington's Maude and Cousin Bill, from **New York.** 11.15, Time Signal. 11.16, Weather Report. 11.17, Teaberry Sport Review. 11.22, Press News Reeler. 11.27, Strange Facts. 11.29, Temperature Report. 11.30, KDKA Orchestra. **11.45 to 3.0 a.m. (Wednesday), New York** Rally. 11.45, To-day's News by Lowell Thomas. **12.0 Midnight,** Pepsodent Amos 'n' Andy. 12.15 **a.m.,** National Advisory Council on Radio in Education—Tax Reform. 12.45, The Townsend Murder Mystery. 1.0, Eno Crime Club. 1.30, Time Signal and Adventures in Health. 1.45, Phillips Lord in The Country Doctor. 2.0, Household Musical Memories. 2.30, Willard Robison's Deep River Orchestra. 3.0, The Time Detective. **3.15 to 4.0, New York** Relay. 3.15, Vic and Sade. 3.30, Homay Bailey and Orchestra. 3.45, Prof. Jack McLallen, Sara and Sassafras. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.15, Press Last Minute News Flashes. 4.20, Smith Ballew and his Orchestra. 4.58, KDKA Artist Bulletin. 5.0, Cotton Club Orchestra. 5.30, Time Signal and Good night.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.,** See **Moravská-Ostrava.** 4.10, Czech Lesson for Germans and German Lesson for Czechs. 4.50, Light Music on Gramophone Records. 5.5, Agricultural Talk. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission—Talk for Young People. 6.0, Chimes and News. 6.10, See **Brno.** 6.40 (approx.), Talk: Propaganda Day. 7.10, Pianoforte Recital by Hona Stepanova-Kurzova: Two Pieces from the Cycle, Spring, Op. 22 (Josef Suk): (a) Spring, (b) Zephyr; Spring Idyll, from Moods, Op. 10 (Josef Suk); Spring Song and Eglogue from Eglogues, Op. 11 (Novak); My Maytide, Op. 20 (Novak). 7.35, A Programme on the Theme, Propaganda Day. In the interval at 8.0, Time Signal. 8.35, String Quartet in D, No. 2 (Smetana), by the Ondricek Quartet. 9.0, Time, News and Sports Notes. 9.15, See **Bratislava.** 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.**—**5.0 p.m.** (from **Lausanne**), Talk on the Children's Sanatorium at Leysin. 5.30 (from **Geneva**), English Lesson. 6.0 (from **Lausanne**), Weather Forecast; News Bulletin and Announcements. 6.20 (from **Geneva**), Answers to Correspondence. 6.30 (from **Geneva**), Concert of New Gramophone Records. 7.0 (from **Geneva**), Chamber Music by the Station Quartet. 8.0 (from **Geneva**), Variety Programme by the Broadcasting Serenaders. 9.0, News Bulletin and Weather Forecast. 9.15 (from **Geneva**), Talk: The Work of the League of Nations. 9.30 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—**8.30 p.m.,** Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes. 9.2, News Bulletin. 9.30, Reading. 10.0, 'Cello Recital by Thorhallur Arnason. 10.15, Recitations. 10.35, Sonata in F Sharp, Op. 79 (Beethoven), on Gramophone Records.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres;** and **2RO, 25.4 metres.**—**6.45 a.m.,** Gymnastics. 7.15 to 7.30, Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. **12 Noon,** Time and Announcements. **12 to 2.15 p.m.,** Concert from **Turin.** In the interval at 12.30, Giornale Radio and Exchange. 3.40, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. **4.30 to 5.15,** See **Turin.** 6.0 **(Naples),** Shipping and Sports Notes. 6.10, Atmospheric Signals. 6.20, Giornale Radio, Agricultural and Dopolavoro Notes. 7.0, Time and Announcements. 7.2, Talk: Uranus, Neptune and Pluto. 7.15, Light Music on Gramophone Records. 7.30, Sports Notes and Tourist Report. 7.45, Extracts from Le Roi de Lahore (Massenet). 8.30, The Wind of the Desert—Comedy in One Act (Pietro Orestano). 9.0, Extracts from Suor Angelica (Puccini). 9.55, News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.**—**12 Midnight,** General Electric Programme. 12.15 **a.m. (Wednesday),** Stock Reports. 12.30, Gold Medal Band. **12.45 to 3.0, New York** Relay. 12.45, The Goldbergs—Comedy Sketch. 1.0, Blackstone Plantation. 1.30, Wayne King's Orchestra. 2.0, Ben Bernie's Blue Ribbon Orchestra. 2.30, Ed. Wynn and the Fire Chief Band. 3.0, Lucky Strike Hour, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE, 244.1 metres;** and **BERNE, 245.9 metres.**—**11.28 a.m.,** Time Signal from the Neuénburg Observatory. 11.30, Weather and News. 11.40 (from **Zürich**), Concert of Light Music by the Radio Orchestra. 12.35 **p.m.,** Weather and Exchange. **12.45 to 2.30** Interval. 2.30 (from **Zürich**), Concert by the Small Radio Orchestra. 3.0 (from **Berne**), Variety Music on Gramophone Records. 4.0 (from **Berne**), Recital by Kreisler on Gramophone Records. 4.30, Weather. **4.35 to 5.30,** Interval. 5.30 (from **Berne**), Talk: Supplying a Town with Corn and Bread in the Later Middle Ages. 6.0, Time and Weather. 6.2 (from **Berne**), Notes on the Broadcast for Schools. 6.15 (from **Berne**), String Quartet of Swiss Music. 6.35 (from **Berne**), A Discussion with a Blind Peddler on his Experiences. 7.0 (from **Berne**), Auf zum Mond—Comic Opera (Werner Wehrli). 7.30, Concert by the Radio Orchestra. 7.50 (from **Berne**), String Quartet, Op. 33, No. 6 (Boccherini), by the Schiffmann String Quartet. 8.15 (from **Berne**), A Visit with the Microphone. 8.30, Weather and News. 8.40, Concert by the Radio Orchestra. 9.15 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.**—**4.5 p.m.,** Programme for Children. 4.30, Songs to the Lute, by Gunnar Bohman. 4.45, Popular Music on Gramophone Records. 5.45, Elementary French Lesson from **Malmo, 231 metres.** 6.30, Talk. 7.0, Sacred Concert, conducted by Hilding Rosenberg: Te Deum for Choir and Orchestra (Bruckner); Suite No. 3 in D for Choir and Orchestra (Bach); Psalmus hungaricus, Op. 13 (Kodály). 8.15, Literary Review. 8.45, Weather and News. 9.0, Light Music. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.,** Popular Music on Gramophone Records. **12.45 p.m.,** News Bulletin. 1.0, Time Signal. 1.1, Market Prices. 1.5, Gramophone Concert of Variety Music. 2.0 **to 4.45,** Interval. 4.45, Talk in French on Colonial Produce: Rice and Rubber in Cochin China. 5.0, Jazz Music, conducted by Roskam. 6.0, Archæological Talk in French. 6.15, Talk in French: Present Day Problems. 6.30, Bach Concert on the Anniversary of his Birth (March 21st, 1685). Conductor: Maurice de Villers. The Brandenburg Concerto: Concerto in C for Two Pianofortes and Orchestra; Concerto in D Minor for Two Violins and Orchestra. 7.30, Time Signal. 7.31, News Bulletin. 7.45, Dance Music on Gramophone Records. 8.20, Lottery Results and Announcements. 8.30, Gabriel Fauré Festival Programme. 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.**—**12.30 p.m.,** Concerto, No. 2 in A for Pianoforte and Orchestra (Liszt), on Gramophone Records. 1.0, Musical Programme arranged by the Post Office. 1.30 **to 2.0,** Advanced English Lesson. 3.0, Talk on Flowers. 3.30, Talk: Women Photographers. 4.0, See **Langenberg.** 5.15, Time, Weather and Market Prices. 5.25, Talk: Our Galaxy. 5.50, Time and News. 6.0, See **Berlin (Königs Wusterhausen).** 7.0, Programme of Contemporary Music and Literature. German Suite (Max Trapp); Prose by Auguste Supper; Verse by Auguste Supper; Marienlieder (Armin Knab); Prose and Verse by Anna Schieber; Songs by Walter Frimmel (Steffan George); Prose and Verse (Johanna Wolff). 8.30, Eating and Drinking—Programme collected and arranged by Martin Lang. 9.0, Time, News, Weather and Programme Announcements. 9.45, Dance Music by the Dance Ensemble of the Stuttgart Philharmonic Orchestra. 11.0 (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—**6.0 p.m.,** News Bulletin. 6.15, Opera Airs: Arias from Carmen (Bizet), Thais (Massenet), Romeo and Juliet (Gounod), and I Pagliacci (Leoncavallo). 6.30, Dances from Prince Igor (Borodin). 6.45, Accordion Solos. 7.0, Argentine Music. 7.15, News, Racing Results, and Market Prices. 7.25, Local News. 7.30, Viennese Music. 8.0, Airs from Opera: Cavatina from Norma (Bellini), Barcarolle from The Tales of Hoffmann (Offenbach); Aria from Così fan tutte (Mozart). 8.15, Violin Solos. 8.30, Popular Songs. 8.45, Military Music. 9.0, Extracts from Bean Brummel—Operetta (Hahn). 9.30, Orchestral Concert, Chinese Serenade (Siede); Marche joyeuse (Chabrier); Selection from Der Bettelstudent (Millöcker); Eglogue (Rabaud); Italian Serenade (Hugo). 10.0, Sound Film Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco. 11.0, Operetta Music: Songs from La petite dame du train bleu (Paré and Van Parys) and Les Cloches de Corneville (Planquette). 11.15, Hawaiian Guitar Music. **11.30 to 12 Midnight,** Programme in English by the I.B.C.: The I.B.C. Half Hour; She's the Sweetheart of Six other Guys; One American Girl; He ain't never been to College; Fair Co-ed; I'll never be the same; Singin' the Blues; As long as Love lives on; It's the darnedest Thing. 11.57, I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Wednesday),** Dance Music. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**4.30 to 6.0 p.m.,** See **Turin.** 6.0, Light Music on Gramophone Records. 6.20 till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.**—**4.30 to 5.15 p.m.,** Dance Music from the Savoia. 5.35, Giornale Radio, Agricultural and Dopolavoro Notes. 6.0, Light Music on Gramophone Records. 6.20, Giornale Radio. 6.30, Time, Announcements, Report of the Royal Geographical Society and Variety Music on Gramophone Records. 7.0, Giornale Radio, Weather, and Gramophone Records (contd.). 8.0, Khovanshchina—Opera (Mussorgsky), relayed from the Scala, Milan. In the intervals, Talk, Announcements, and Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and **50.26 metres** (Evening); 10 kW.—**10.0 to 10.15 a.m.,** Religious Information in English. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.**—**4.0 p.m.,** Concert of Light Music, by Rudolf Lederer and his Band. 5.15, Agricultural Talk. 5.40, Talk: Life as a Forester's Wife in Java and Sumatra. 6.5, French Lesson. 6.30, Time, Weather, and Programme Announcements. 6.40, Concert by the Opus Quartet: Hallstadt Wedding March (Hummel); Minuet (Hummel); Old Viennese Dance, 's is Red (Stelzmüller); Thernberg Wedding Pieces (Stelzmüller); Polka Mazurka, Lob der Frauen (Joh. Strauss); Upper Austrian Folk Melodies; Biedermeier-Walzer (Fürich); Biedermeier Gavotte (Bass); Old Viennese Dances (Bass). 7.15, A Comedy in Four Acts (Sacha Guitry), German by Bruno Frank. 8.30, Part-Relay, Mistinguette in her Revue, Voilà Paris (Part-Relay), from the Ronacher. 9.30, News, Weather, and Announcements. 9.45, Concert by Gustav Macho (Violin), Hans Quiquerez ('Cello), and Eugen Billig and Gustl Heintze (Pianoforte), relayed from the Hotel Krantz-Ambassador.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Bugle Call from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Popular Music on Gramophone Records. **12.20 p.m.,** Weather Forecast. **12.25 to 2.10,** Interval. 2.10, Announcements. 2.25, Aviation Report and Anti-Gas Drill. 2.30, Announcements. 2.35, Book Review. 2.50, Light Music on Gramophone Records. 3.20, Programme Announcements. 3.40, Talk on Witchcraft, relayed **from Wilno (563 metres).** 4.0, Concert by the Warsaw Symphony Orchestra, conducted by G. Fitelberg: Overture, The Flying Dutchman (Wagner); Scheherazade (Rimsky-Korsakov). In the interval, Announcements. 4.55, Programme Announcements. 5.0, Literary Talk: The Historical Novel of the Nineteenth Century. 5.20, Talk on Current Events. 5.25, Light Music. 6.0, Miscellaneous Items. 6.20, Agricultural Bulletin. 6.30, Reading. 6.45, Radio Journal. 7.0, Esthonian Song Recital by G. Viimamagi (Baritone). In the interval, Sports Notes and Radio Journal. 7.25, Concert by the Station Orchestra, conducted by J. Ozminski. Soloist: S. Schleichkorn (Viola). Suites Nos. 1 and 2 from L'Arlésienne (Bizet); Viola Solos: (a) Sarabande and Allegretto (Corelli), (b) Canzonetta (d'Ambrosio), (c) Caprice No. 13 (Paganini-Schleichkorn), (d) Celtic Song (Forsyth); Overture, Il Seraglio (Mozart); Minuet, Bourrée and Passepied from the Overture in C, No. 1 (Bach). Concerto for Viola and Orchestra (Handel). 9.0, Literary Discussion. 9.15, Dance Music. 9.55, Aviation Weather Report and Police Notes. 10.0, Dance Music. 11.0 (approx.), Close Down.

WILNO

563 metres; 16 kW.—**5.55 p.m.,** Miscellaneous Announcements. 6.0, Reading. 6.15, Wireless Technical Talk. 6.30, Recitations. 6.45, See **Warsaw.** 9.15, Reading. 9.45, Dance Music relayed from **Warsaw.** 9.55, See **Warsaw.** 11.0 (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

Foreign programmes continued on page XIII.

PROGRAMMES CONTINUED

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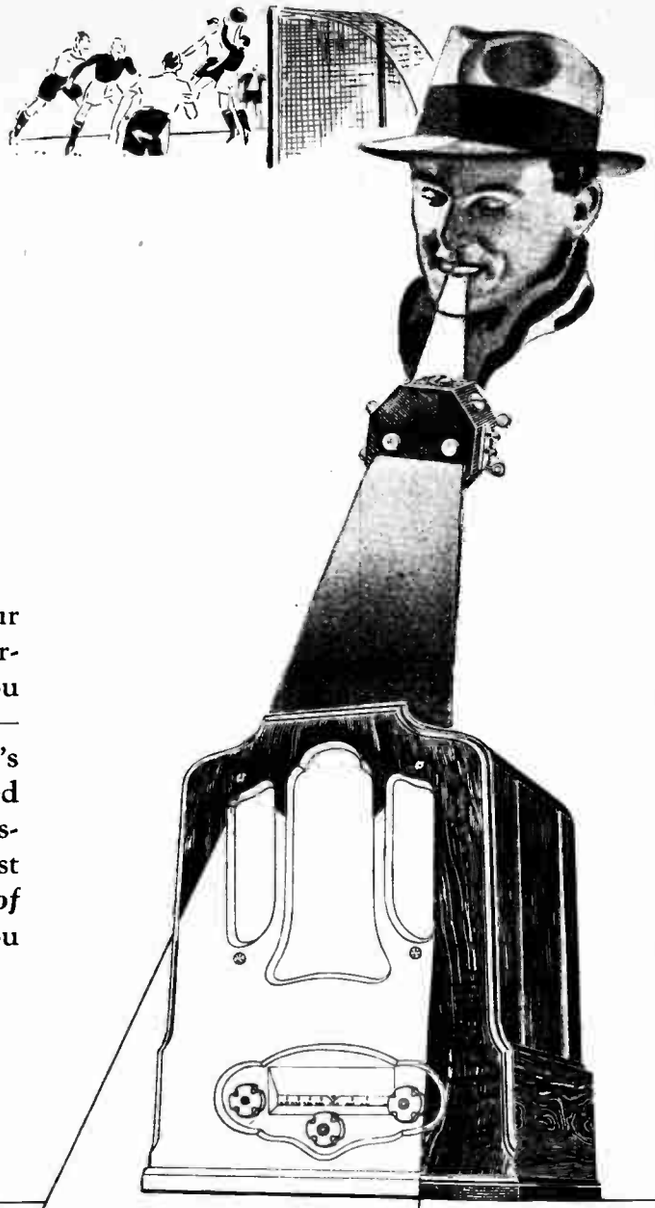

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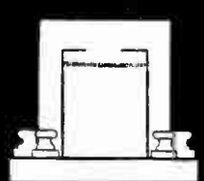

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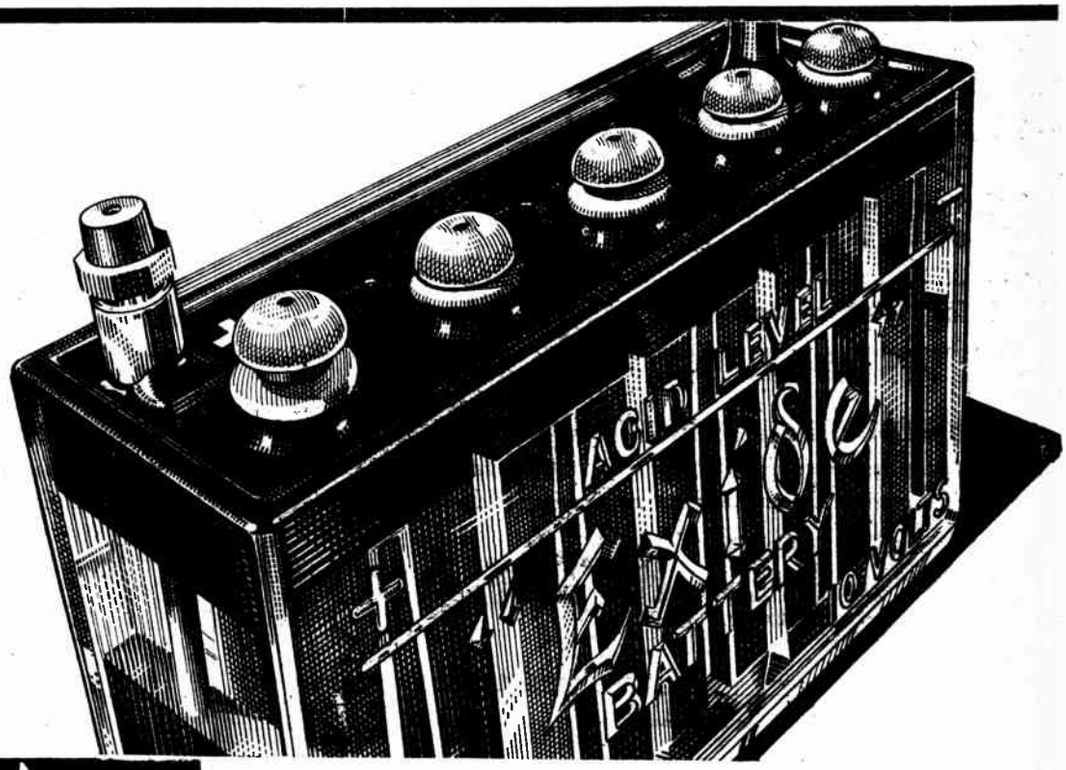
P43



Exide

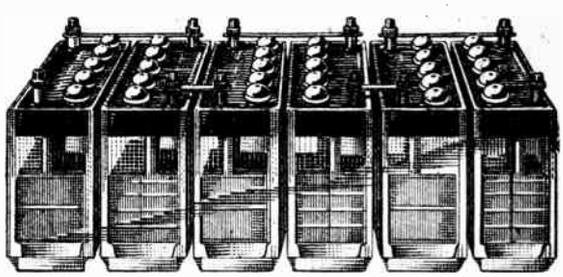
WIRELESS **H.T.** ACCUMULATORS

Almost all the unwanted noises in a wireless set come from the H.T. supply. If the H.T. supply is perfectly smooth and steady, then nothing will be heard but the programme. Every wireless engineer knows that the accumulator is the only source of H.T. that is perfect in this respect. That is why the B.B.C. use them. That is why Exide H.T. Accumulators have been chosen for almost every important speech relay. They are economical too, for although they cost more at first they can be recharged when run down. If you want the clearest reception it is possible to get, invest in an Exide H.T. Accumulator.

● **Prices per 10-volt unit:** Type WJ 2,500 milliampere hours **5/-**. Type WH 5,000 milliampere hours **6/3**. Type WT 10,000 milliampere hours **12/-**. Also complete batteries in crates.

These prices do not apply in the Irish Free State.

From Exide Service Stations or any reputable dealer. Exide Service Stations give service on **every** *make of battery.*



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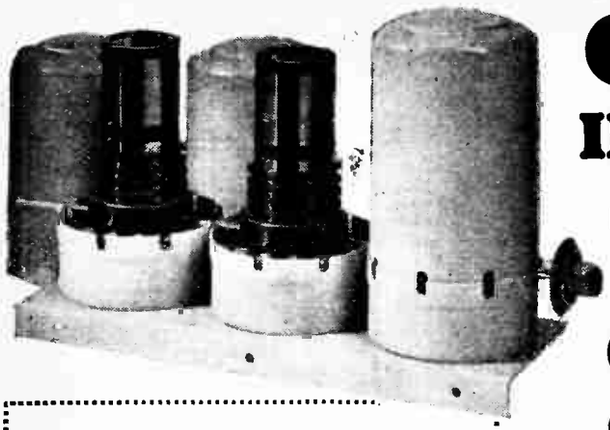
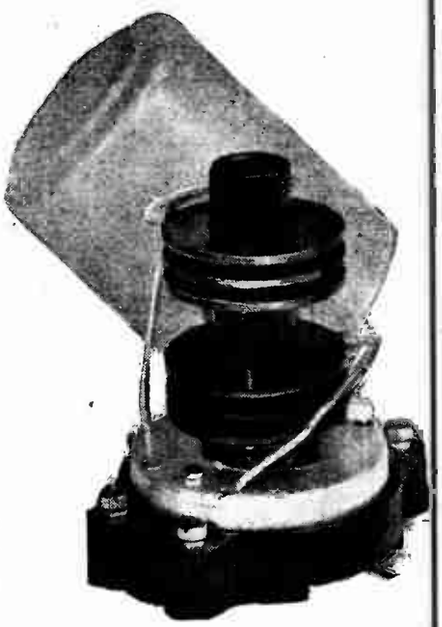


COLVERDYNE INTERMEDIATES

Designed to work in conjunction with

COLVERN 'K' TYPE COILS



For the A.C."MONODIAL" with Automatic Volume Control.

1 Set Coils, Type WWMD at **30/-** per set.

3 Colverdynes. Type 110 at **12/6** each.

In receivers of outstanding design Colvern Coils are incorporated . . .

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A.V.C. MODEL 39/6

Over **4,000** CHALLIS TRANSFORMERS ALREADY SUPPLIED FOR THIS SET

2.5 Watts A.V.C. Power Chassis.

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The "Wireless World" Ferrocart III. A.C. Receiver.

1 Mains transformer, screened primary, 350-0-350 v. 60 mA. 4 v. 2.5 amps., c.t., 4 v. 3.5 amps., c.t. **28/6**

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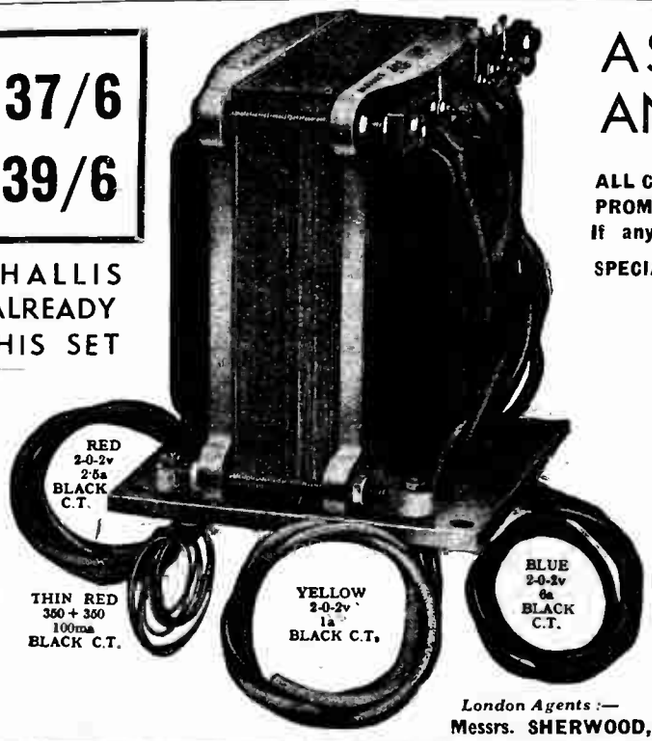

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Manufacturers and Purveyors of Electric Lamps By Appointment

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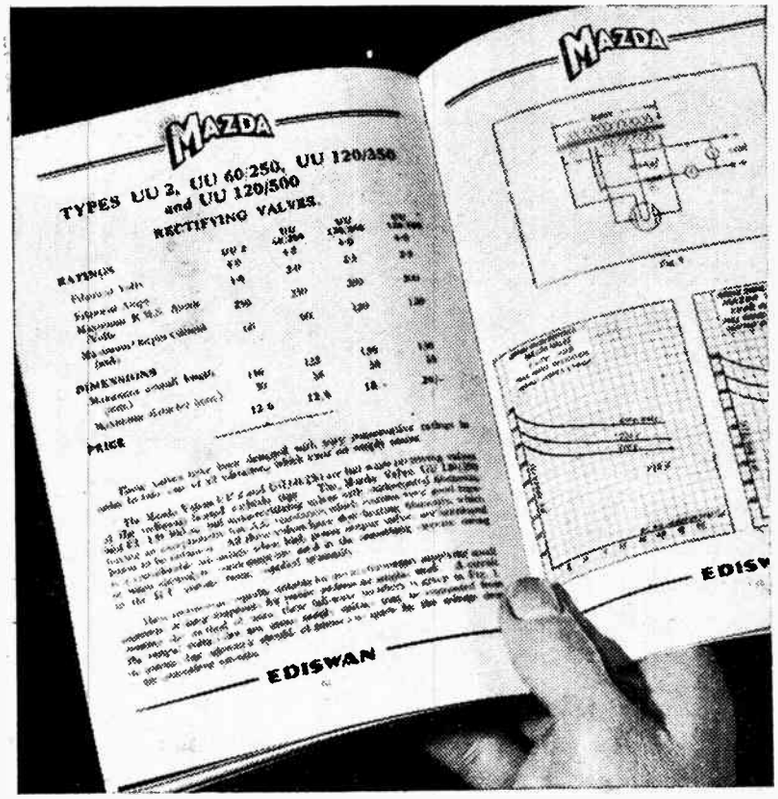
THE ADVANTAGES OF USING RECTIFIERS WITH INDIRECTLY HEATED CATHODES?



Mazda indirectly heated rectifiers have slow-heating cathodes. Most valve users know that; but few realise how valuable that property is — how it safeguards the electrolytic condensers and chokes in the smoothing circuits. That is the advantage of this book. It tells you, not only the characteristics of Mazda Valves but also how to use them at the peak of efficiency. By using it you save time and unnecessary trouble and expense; and get the results you want—first time and all the time.

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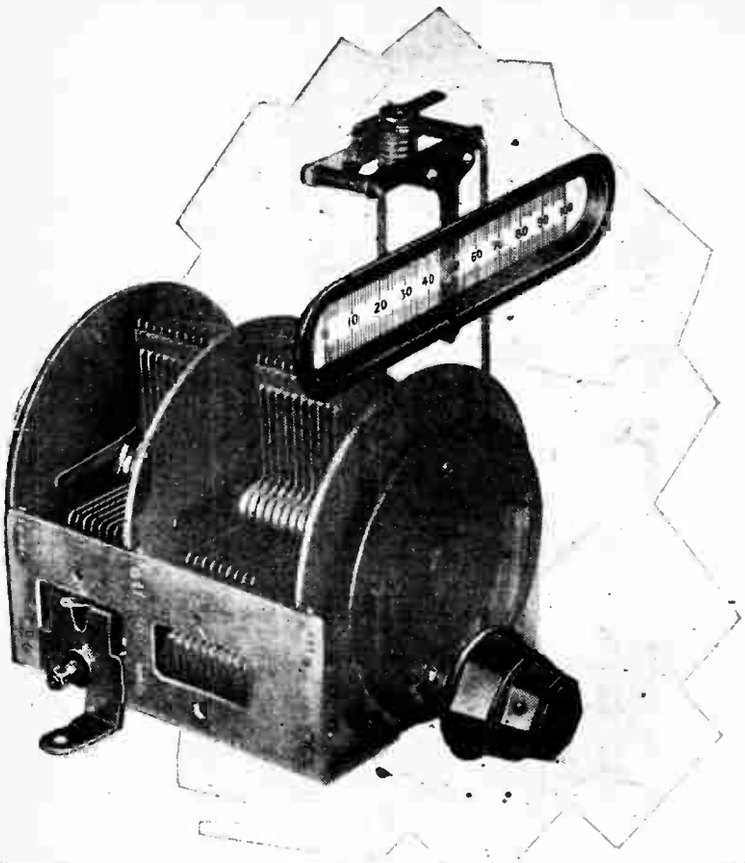
Mazda Radio Valves are manufactured in Great Britain for The British Thomson-Houston Co. Ltd., London and Rugby.

RECOMMENDED BY ALL GOOD RADIO DEALERS

V.195



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W 312/2 2 gang condenser complete with Straight Line Dial as illustrated **24/6**

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A.C. Monodial Super with AUTOMATIC VOLUME CONTROL

DUBILIER CONDENSERS

The absolute dependability of Dubilier Condensers makes them the obvious choice of every discriminating set designer and constructor.

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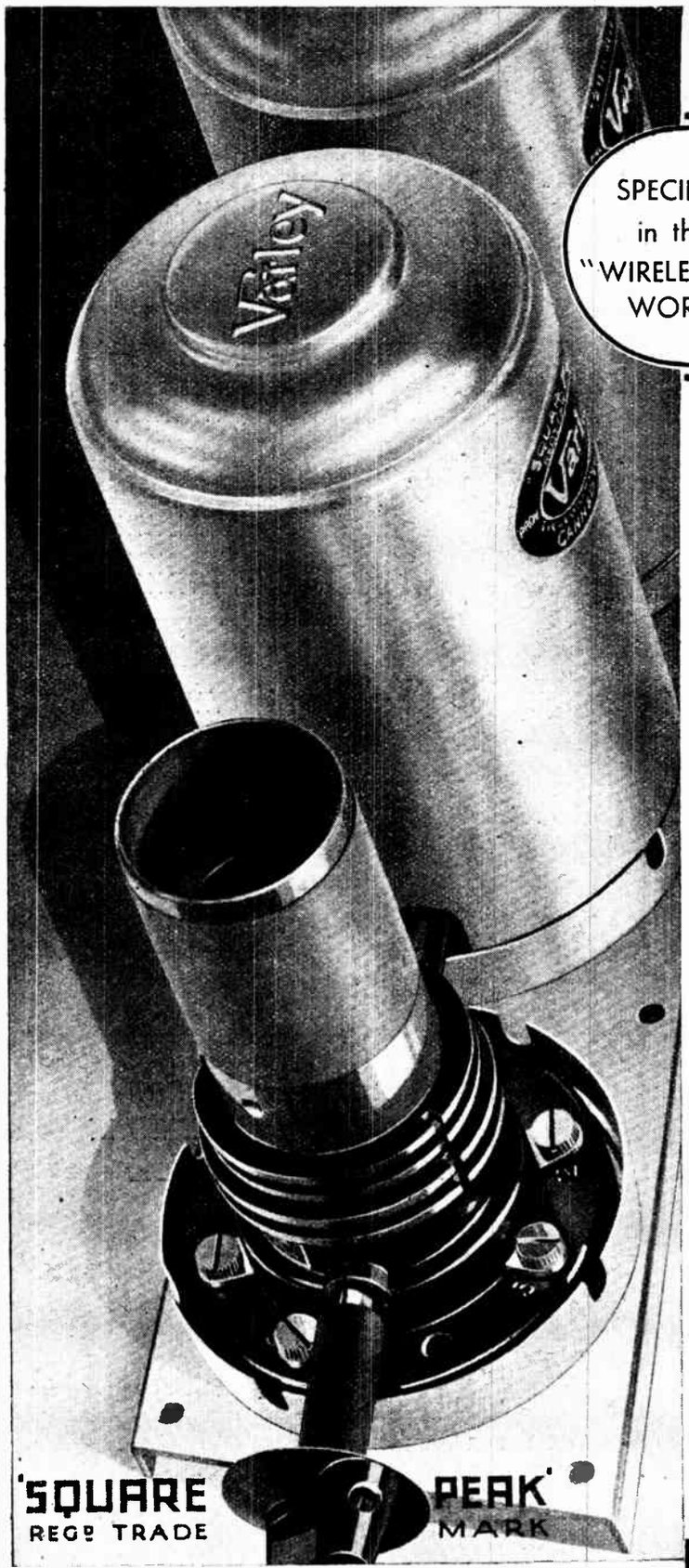

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A.C. MONODIAL SUPER with A.V.C.

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With these coils single-knob control is obtained without using any "padding" condensers on the medium waves, and with only one additional fixed condenser on the long waves. The intermediate frequency is 110 k.c.

Supplied as a complete unit comprising single control aerial, intervalve and oscillator coils. List No. BP19.
3-gang unit on aluminium base-plate **30/-**

Also Specified:—

VARLEY THERMAL DELAY SWITCH

Automatically permits the valve filament to be heated for the desired one minute before switching on the anode circuit.
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"The Battery Set Comes Into Its Own," tells you all about installing Q.P.P. Write for your copy to-day.

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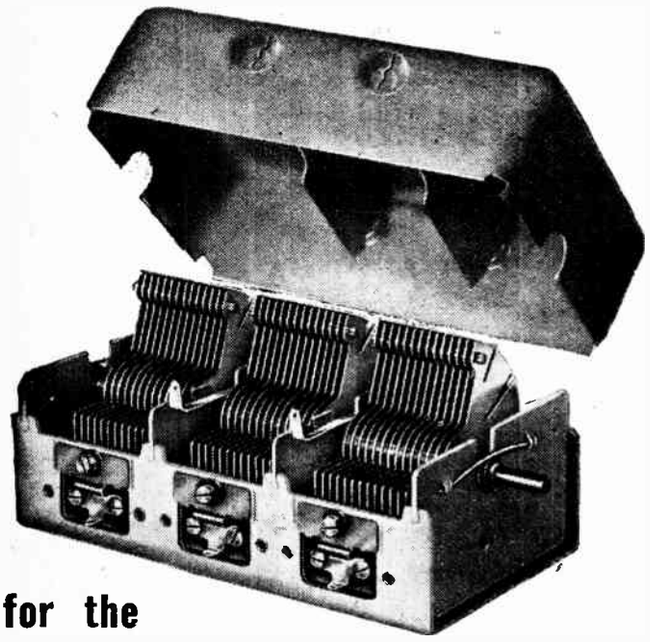

for the

"W.W." A.C. MONODIAL SUPER

with Automatic Volume Control

"The Wireless World" in designing this new A.C. Monodial receiver have repeated their selection of the British Radiophone 3 Ganged Super Heterodyne Condenser which was such an important factor in the success of other Monodial Super receivers.

The unequalled precision of this condenser, which is supplied with the trimmers on the right-hand side, complete with cover and disc drive, is achieved by virtue of sound mechanical construction which maintains the electrical characteristics at fixed value under the most exacting conditions.

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The rotor bearings are designed so that any end-wise movement of the spindle is effectively prevented and smooth silent action is ensured during rotation.

SPECIFIED FOR THE "W.W." A.C MONODIAL SUPER

Type 424a Super Het. 3-gang Condenser.	Price	27/-
3-gang cover	"	3/-
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RADIOPHONE GANGED CONDENSERS

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Specified Again — this time for the "A.V.C. A.C. MONODIAL SUPER"

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1 WIREWOUND POTENTIOMETER, 5,000ω	5/6
15 "B.A.T." (Best-After-Test) FIXED RESISTANCES, 1-WATT, viz.: 2 × 250ω, 3 × 1,000ω, 1 × 2,500ω, 1 × 10,000ω, 1 × 30,000ω, 1 × 50,000ω, 1 × 75,000ω, 2 × 100,000ω, 1 × 250,000ω and 2 × 1 Megohm: @ 10½d. each	13/1½
1 "B.A.T." RESISTANCE, 2-WATTS, 4,000ω	1/9
1 "B.A.T." RESISTANCE, 3-WATTS, 6,000ω	2/9
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1 "B.A.T." 1-WATT RESISTANCE, 50,000ω	10½d.
1 "B.A.T." 2-WATT RESISTANCE, 700ω	1/9
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1 POWER RESISTANCE, 2,500ω, 10 WATTS	7/6
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1 "B.A.T." 3-WATT RESISTANCE, 6,000ω	2/9

IMPORTANT NOTICE.

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G.E.C. Radio

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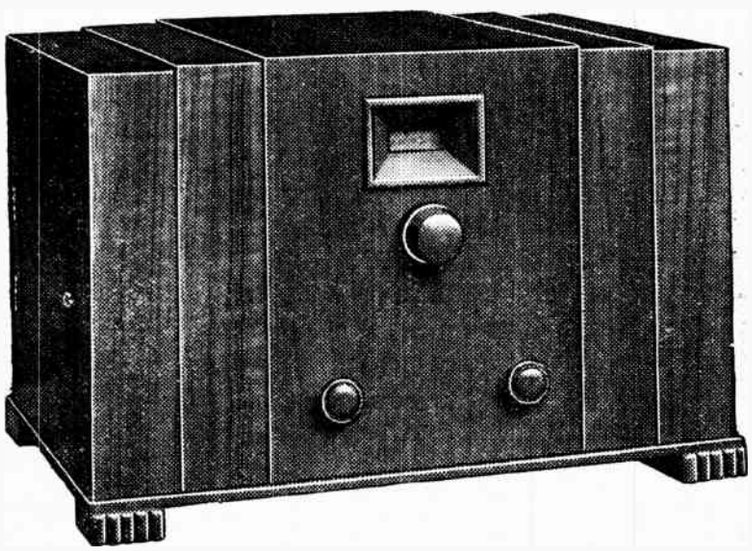
Specially designed for Empire Broadcast reception in any part of the world and for use in all climates. Excellent reports have been received concerning reception of transmissions from the Empire short-wave transmitters at Daventry.

A.C. MAINS MODEL



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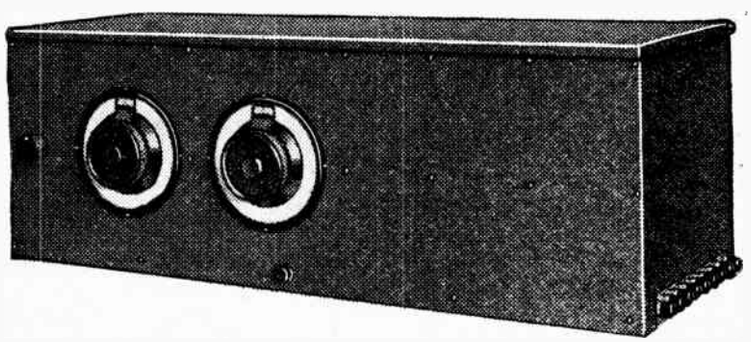

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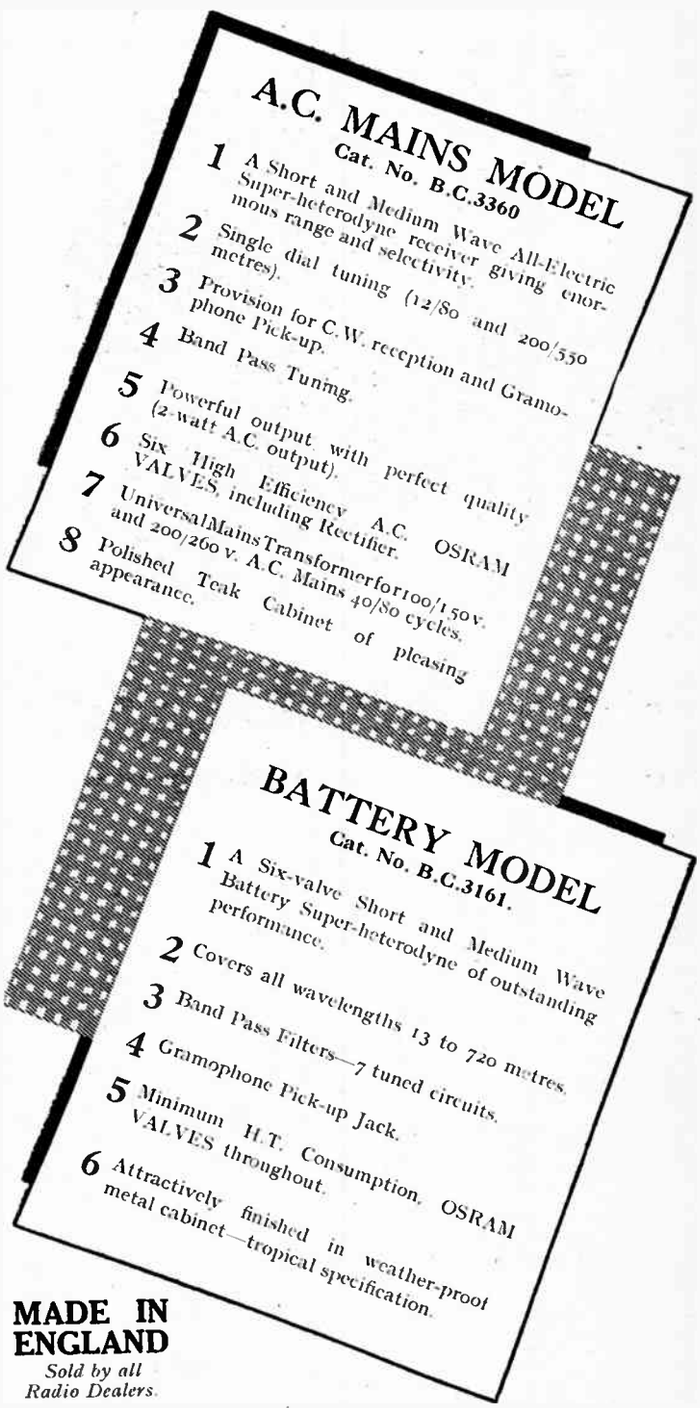
Brilliant performance giving reception over thousands of miles on short and medium wave bands characterises these two outstanding models.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Cat. No. B.C.3360
1 A Short and Medium Wave All-Electric Super-heterodyne receiver giving enormous range and selectivity.
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BATTERY MODEL
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Lowest manufacturing costs are only possible with large, modern plant. In the new £100,000 British EKCO Factory, designed especially for the manufacture of radio, electrical and large moulded products, and covering five acres, you will find every modern device and process, supported by a sound trading policy. In less than seven years production costs have been reduced by 60%—savings which have been passed on to you.

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The Wireless World

THE PRACTICAL RADIO JOURNAL

22nd Year of Publication

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As many of the circuits and apparatus described in these pages are covered by patents, readers are advised, before making use of them, to satisfy themselves that they would not be infringing patents.

CONTENTS

	Page
PROGRAMMES FROM ABROAD, pp I—XXIV	
Editorial Comment	199
New Battery Output Stage	200
How Ferrocart is Made	203
Unbiased	204
News of the Week	205
Broadcast Brevities	206
Practical Hints and Tips	207
Adding A.V.C. to the Monodial	208
Laboratory Tests	211
Gecophone S.W. Superheterodyne	212
Letters to the Editor	214
Readers' Problems	216

EDITORIAL COMMENT

The Lucerne Plan

Points for Discussion

NO official disclosures have, as yet, been made as to what will be the precise agenda put before the broadcasting authorities of Europe at their Conference which is to be held at Lucerne, probably in May next, but from what information we have been able to obtain it would seem that the purpose of the Lucerne Plan will be to try to clean up the ether and modify the present wavelength plan in so far as it has been found necessary to do so as a result of the increase in power of a number of European stations, and to arrange, also, for the accommodation of some further high power stations which are awaiting wavelength allocation. It is believed that the new Plan will retain the existing frequency separation of 9 kC.

Amongst the proposals to be discussed, one, we undertand, is that there should be an extended use of common wavelengths for stations of low power, especially where these are widely separated geographically. It is apparent to anyone looking through the present list of broadcasting stations of Europe that a good deal could be done in this way and that the effect would undoubtedly be to clean up the ether for the benefit of those stations which are intended to cover a wide service area and, therefore, are of high power. There are at present rather too many little stations on the fringe of big ones, tending to mar reception of the latter.

It has been suggested that proposals may be made for the allocation of certain wavelengths by hours. Such a scheme might be very effective in theory, as a means of overcoming some of the interference difficulties, but if it is intended that certain stations would change their wavelengths at specified times, we anticipate that the scheme would not find favour with listeners, who are now accustomed to tuning in and identifying stations by wavelength, and would find it extremely inconvenient if this process were further complicated by regular changes in wavelength.

A.V.C.

An Addition to the Monodial

IN this issue we describe how to make modifications and additions to *The Wireless World* Monodial A.C. Superhet, in order to provide the set with automatic volume control. Every reader who has built the Monodial will be anxious to make this addition, which we have ourselves had in operation for some time and so can answer for the entirely satisfactory way in which it functions.

There will be many readers attracted to the Monodial for the first time as a result of the incorporation of A.V.C., and in our description we have arranged to meet their requirements by indicating all that is necessary when making a fresh start to build the Monodial with A.V.C. incorporated.

Class "B" Amplification

First Details This Week

EARLY information on Class "B" Amplification is included in this issue. Special valves have been designed for use with this system and are, in fact, double valves in one envelope. Class "B" Amplification has the advantages that matching of valves is unnecessary, the performance falls very little short of that of much more elaborate output stages, and yet it is substantially more economical both in battery current consumption and in initial cost.

New Battery Output Stage

Class "B" Amplification: The Latest Development

The new Cossor 240B valve with 7-pin base.

HOT on the heels of Quiescent Push-Pull comes Class "B" amplification, another means of procuring mains volume from the ordinary H.T. battery. A glance at the power output figures given in this article will reveal the extraordinary efficiency attainable with the new dual valve, no less than two watts speech being delivered to the loud speaker for a surprisingly small H.T. consumption.

It is safe to predict that Class "B" output will find wide application in future battery receivers.

By F. M. WALKER, B.Sc.

(Chief Valve Engineer, Cossor Research Laboratories)

UP to the present date two main forms of L.F. amplification have been available for the battery set user in this country. The first of these is the ordinary form where the output valve is biased to the mid-point of its characteristic curve. In this case, the anode current drawn from the H.T. battery is steady and does not vary with the strength of the signal applied. In addition, the maximum signal which the valve will accommodate is limited by the fact that no grid current must flow at any instant.

The second system is that of the well-known form called Q.P.P. Here two valves are used in the output stage, and both of them are supplied with bias sufficient very nearly to cut off the whole of their plate current when no signal is being received. The anode current from the H.T. battery is now not constant, but varies in a manner roughly proportional to the strength of signal received. Here again, however, the maximum signal which the valve can handle, and, therefore, the available power which it can deliver to the loud speaker, is limited by the fact that grid current must never flow.

Mains Output

In the form of push-pull amplification to be described, which is known in America as Class "B" amplification, the limitation which is common to the two schemes mentioned above, due to grid current considerations, does not exist. In consequence, the signal handling capacity of the valve is unlimited on this score. In addition, the plate current drain on the H.T. battery is proportional to the strength of signal received, and is not constant irrespective of the signal strength. The net consequence of these two facts is that a system is now available for battery set users which provides an undistorted output of 2 watts or more with an anode current consumption well within the capacity of quite small H.T. batteries. Such an output is, of course, equal to that of a large mains set.

The fact that in previous forms of L.F. amplification the flow of grid current in the amplifying valve means serious distortion, is well known. The exact reason for this distortion is, it is probable, not commonly realised. Grid current in modern valves generally commences to flow when the grid becomes very slightly positive and increases rapidly with increase in positive grid voltage. When such grid current occurs in a set in operation it will, therefore, do so towards the peaks of the positive half-cycles. A high resistance of some form is generally present in the grid circuit of an amplifying valve (L.F. transformer secondary or resistance in R.C. coupling), and this current in flowing through such a resistance will entail a drop in voltage. In consequence, when grid current flows, the form of distortion present in ordinary forms of L.F. amplifiers will be a flattening of the peaks of the waves (see Fig. 1). Another way of regarding this distortion is to consider that the passage of grid current through the grid circuit entails an energy or wattage loss. This conception leads us at once to Class "B" amplification, since in this system a small power valve is used which precedes the Class "B" valve proper, and which is coupled to the latter by means of a special transformer. The function of this transformer and valve is to supply the energy loss mentioned which occurs due to grid current flow, and thus to maintain the wave form in an undistorted condition. This valve is known as the "driver" valve, and its associated transformer as the "driver" transformer.

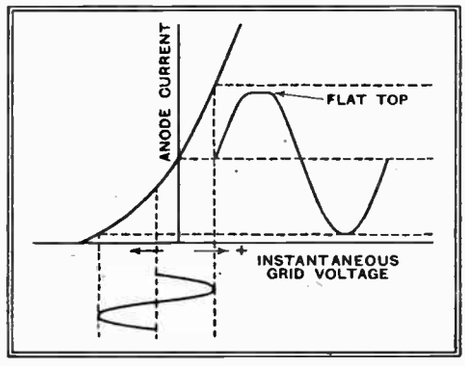


Fig. 1.—Distortion due to grid current flow in an ordinary L.F. amplifier. Note the flattening of peaks of the output wave.

The Class "B" valve, which has been designed in the Cossor Valve Laboratories for use in battery sets, has two complete sets of valve elements enclosed in one bulb, separate leads being provided for each anode and grid, the filament connections being common. This has been rendered possible by the fact that matching of the two halves of the output is not at all critical, and thus any slight differences between the two halves due to small inherent manufacturing variations do not introduce audible distortion. The valve has a 7-pin base, with the pins arranged so that it is impossible to make wrong connections with the valve-holder. The relative connections to the latter are given in Fig. 8.

The working details of this valve are described later. It is designed in such a fashion that its anode current at an anode voltage of 120 is about 2 mA at zero bias. In consequence, no grid bias is required to bring the valve to the bottom bend of its characteristic, the point at which it is desired to operate.

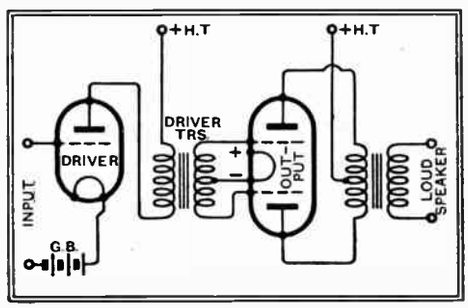


Fig. 2.—Skeleton circuit diagram of the driver stage linked to Class "B" output valve. No grid bias is required for the last valve.

New Battery Output Stage—

Referring to the circuit diagram Fig. 2, it will be seen that if at any instant the grid of one-half of the output valve is positive with respect to the filament, the other grid is negative. Thus grid current is always flowing in either one-half of the secondary of the transformer or the other, and, in general, will cause a voltage drop across that half of the secondary in which it flows, and therefore tends to produce distortion of the peaks of the signal voltage waves. The driver transformer must therefore have a secondary winding of very low D.C. resistance (good regulation), being wound of wire such as is used in power transformers. The D.C. resistance of the whole secondary should not exceed in any case 300 ohms, in order that distortion from this cause may be negligible.

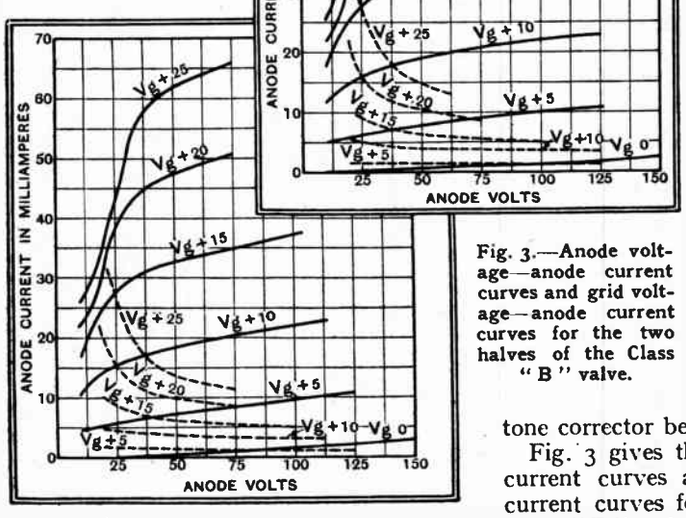


Fig. 3.—Anode voltage—anode current curves and grid voltage—anode current curves for the two halves of the Class "B" valve.

This point is of great importance, and, if it is adhered to, no measurable distortion whatever is introduced at this stage. Except for the design of this transformer, the circuit presents no difficulties. The driver valve is connected as a low-frequency amplifier of the usual conventional type and supplies an undistorted and requisite signal to the Class "B" valve. The output transformer following the Class "B" valve has, of course, a centre-tapped primary and is of the correct ratio to give the load into which the Class "B" valve is designed to work, in relation to the loud speaker impedance.

Since the anode current of the valves passes through the primary of this transformer, and since the peak value of this current may momentarily reach fairly large values, the D.C. resistance of the primary winding should be small, so as to minimise voltage dropping; 200 to 250 ohms is a suitable value. For the same reason the core used should be generous in proportions, the primary inductance being of the order of 20 henrys overall.

Owing to the extreme changes in impedance with frequency of moving iron speakers, these are not recommended for Class "B" amplification. Permanent magnet moving-coil loud speakers are to be preferred, and, if such can be obtained with high enough voice coil impedances, tapped choke output is recommended. Moving-iron speakers may, however, be used if a tone corrector be applied.

Fig. 3 gives the anode voltage—anode current curves and grid voltage—anode current curves for the two halves of the Class "B" valve. Fig. 4 shows the derived dynamic curves of the whole valve for various loads, taken at an anode voltage of 120. The peak allowable anode current for the valve is 50 mA, the peak grid voltage for each half being 20 volts. In Fig. 5 the anode voltage is 90.

The signal voltage to be supplied to the grids of the Class "B" valve across the full secondary of the driver transformer may rise to 40 volts peak. At this point, the lowest impedance is offered by the grid circuit of either half of the Class "B" valve. This impedance is about 2,500 ohms, and owing to the fact that only one-half of the secondary of the driver transformer is in operation at any moment, the effective minimum load into which the valve works is 10,000 ohms if the overall ratio of the driver transformer is 1:1.

The energy which has to be supplied by the driver valve to make up for the energy loss due to grid current flow is at this point about 70 milliwatts. This output can well be given by a Cossor 215P valve biased at −9 volts and with a plate voltage of 120 volts. Its steady plate current under these conditions will be 2½ mA.

Two Watts Output

Fig. 6 shows the A.C. output obtained from the valve at plate voltages of 120 and 90 plotted against anode circuit load, together with the percentage corresponding total harmonic distortion, the grid swing being limited to 40 volts peak. The distortion is almost entirely due to third and odd higher harmonics, as is usual in such forms of push-pull. It will be observed that the optimum load for the valve is about 8,000 ohms plate-to-plate, and that the A.C. output obtainable is 2 watts at a plate voltage of 120.

It would appear at first sight from examination of the valve's dynamic curves that the optimum load is 2,000 ohms. The discrepancy lies, of course, in the fact that only one half of the output transformer is in use at any instant, and hence a multiplying factor of four has to be introduced giving a plate-to-plate load of 8,000 ohms. The effect may be well understood by regarding the primary of the output transformer as a kind of auto-transformer.

The comparatively low load of 8,000 ohms is of great value in output transformer design both regarding cost and effi-

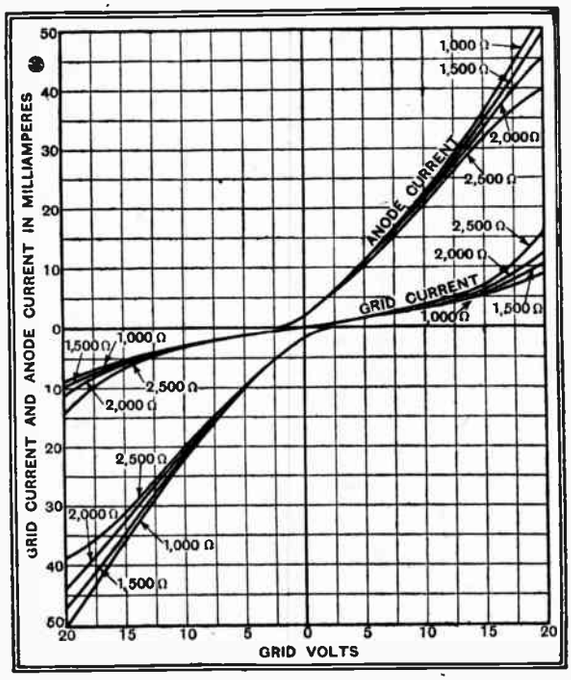


Fig. 4.—Dynamic curves for the whole valve for various loads taken at an anode voltage of 120.

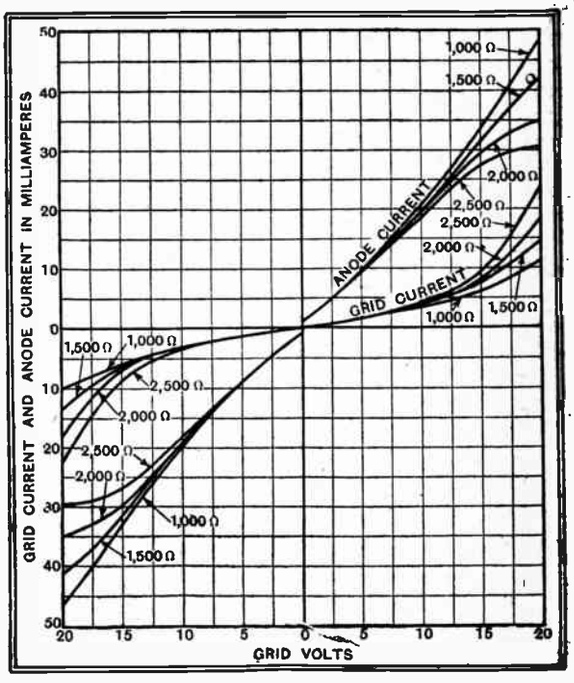
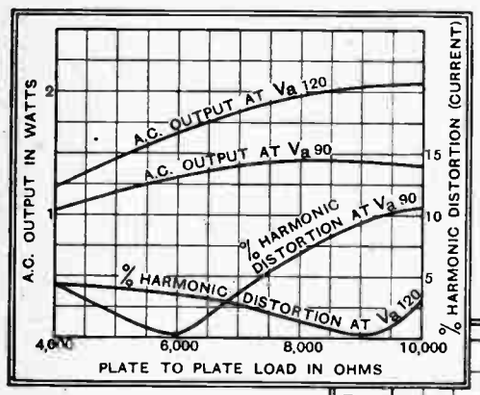


Fig. 5.—Dynamic curves taken at an anode voltage of 90.

New Battery Output Stage—

ciency. In itself it would be regarded by many as perhaps the most vital advantage of the system secondary to low anode current consumption for high A.C. output. There is also, of course, the tremendous advantage of having no bias for the output stage.


A.C. OUTPUT IN WATTS
A.C. OUTPUT AT Va 120
A.C. OUTPUT AT Va 90
% HARMONIC DISTORTION AT Va 90
% HARMONIC DISTORTION AT Va 120
% HARMONIC DISTORTION (CURRENT)
PLATE TO PLATE LOAD IN OHMS

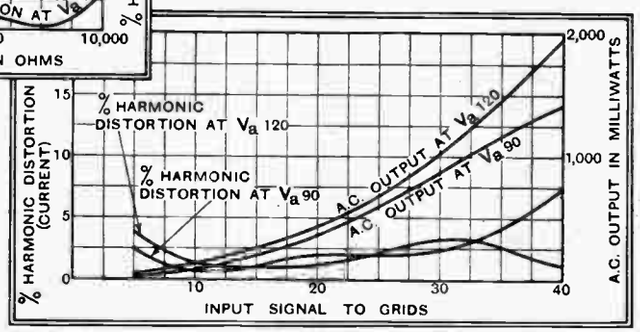

% HARMONIC DISTORTION (CURRENT)
% HARMONIC DISTORTION AT Va 120
% HARMONIC DISTORTION AT Va 90
A.C. OUTPUT AT Va 120
A.C. OUTPUT AT Va 90
A.C. OUTPUT IN MILLIWATTS
INPUT SIGNAL TO GRIDS

Fig. 6.—(above) The A.C. output and percentage harmonic distortion of the Class "B" valve plotted against plate-to-plate load. Fig. 7. (right) The A.C. output and percentage harmonic distortion plotted against applied signal in peak volts assuming an anode-to-anode load of 8,000 ohms.

Diagram 7 shows the A.C. output obtainable, and percentage total harmonic distortion plotted against applied signal voltage for plate voltages of 120 and 90 respectively and a load of 8,000 ohms plate-to-plate. From these curves it will be observed that distortion at low amplitudes is not large enough to cause trouble, and that the lower plate voltage of 90 volts also gives satisfactorily pure reproduction.

This latter point is of great importance to set designers. The voltage given by the average H.T. battery after a short period of use, although nominally 120 volts, is actually below this. In all other systems of push-pull output such a drop in battery voltage would entail the readjustment of grid bias (or screen voltage in the case of pentodes) to ensure good quality. If the battery voltage should drop from 120 volts to 90 volts distortion becomes by no means intolerable, even though the Class "B" valve receive its full signal swing; obviously, however, its signal drops owing to the lower voltage on the driver valve, and distortion then becomes quite negligible. Since, at the best, adjustment of grid bias or screen voltage in other systems is a delicate matter, the advantage will at once become evident.

Low H.T. Consumption

The total current drawn by the Class "B" valve and driver with no signal is, at a plate voltage of 120, of the order of 6.5 mA. This does not represent the total drain on the battery, however. Owing to the fact that the valves are effectively working at their bottom bends, the current flowing in the H.T. battery due to the Class "B" valve will vary in accordance with the signal applied. These variations will be momentary, and will reach the full maximum only when 100 per cent. modulation is reached. The average modulation of broadcast stations in general is probably about 25 per cent., and this, combined with the fact that there are many short periods of rest during a programme, will give a very much lower consumption.

Measurements have been carried out, using a silver voltameter, of the average current consumed by the Class "B" valve over a broadcast period of about forty-eight hours of the London National station. The loudest passages were adjusted to swing the grid voltage of the Class "B" valve to the allowable maximum of 40 volts peak. Under these conditions, and with a plate voltage of 120, the anode battery drain is 8.5 mA. Thus to obtain an A.C. output of 2.0 watts the total H.T. consumption will be 11.0 mA., counting the driver valve current. For lower A.C. outputs the consumption will, of course, be correspondingly lower.

Some users may find that an A.C. output of 1 watt is all that is required to meet their taste. In this case the signal applied to the Class "B" valve may be limited to a maximum value of 30 volts peak (grid to grid), and its average anode consumption is 5 to 6 mA. The anode voltage of the driver valve may also be decreased to 100 volts, giving a current consumption of 1½ mA. Thus for an A.C. output stage of 1 watt the total anode current drain is 6.5 to 7.5 mA., whilst for 2 watts it is about 11 mA. These figures should be contrasted with the case of a high-efficiency pentode such as the Cossor 220 PT, which for an A.C. output stage of 1 watt capacity entails a steady anode current drain of 20 mA.

Let us now summarise the great advantages of Class "B" output. This form of amplification is capable of providing an output from a battery set comparable with that of a mains set, and with an anode current consumption which can be provided by ordinary H.T. batteries without incurring the disability of short life. Matching of the halves is not critical, and distortion is negligible. No grid bias is required for the output valve, and the output transformer is quite easy to design as the plate-to-plate load is only 8,000 ohms.

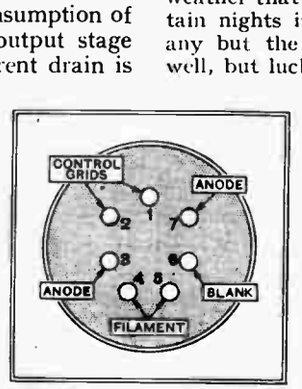


Fig. 8.—This illustration represents a Class "B" valve holder as seen from above, the connections being indicated.

DISTANT RECEPTION NOTES.

THE reception of transatlantic stations continues to be very good and readers who care to try for them may be surprised to find that the optimum wavelength is apparently showing a tendency to increase at the moment. Until recently very little has been heard above about 350 metres, but I can record quite good reception on several nights of WJZ on 394.5 metres and WEAF on 454.3 metres. I have not, though, been able to make much of WLW, the 50-kilowatt station on 428.3 metres. That is rather surprising, for previously when the stations on the longer waves have been receivable I have generally heard WLW well.

In addition to the United States stations quite a number of those in the Argentine can be received on nights when conditions are favourable. So long as the approximate wavelength is known the Argentine stations are easy to pick up and identify owing to the fact that announcements are made in Spanish. Here are the chief Argentine stations, all with an output rating of 10 kilowatts and all hailing from Buenos Aires.

LS9 216 metres	LS8 244 m.	LS2 252 m.
LR8 261 m.	LS5 280 m.	LR9 291 m.
LR4 303 m.	LR6 330 m.	LR2 345 m.

Another Spanish-speaking South American station is XED of Reynosa, Mexico, a 10-kilowatt station using the wavelength of 311 metres.

The more or less informal conference of the U.I.R. at Brussels is now coming to an end and the preparatory work for the Lucerne Conference has been done. Nearly every European country sent representatives to Brussels and the chief task of the conference was to prepare a revised wavelength plan which will be finally discussed at Lucerne.

Long-distance reception has been somewhat affected, particularly during the hours before darkness sets in, by the changeable weather that we have had of late. On certain nights it has been difficult to receive any but the most powerful stations at all well, but luckily such nights have not been numerous. On the whole both the volume and the quality obtainable from long and medium wave European stations show few signs of "that spring feeling" which used to become noticeable at about this time in former years when the average output rating of stations was so much less than it is now.

The long-wave band shows few changes save that Motala has not been too easy to receive well. Warsaw is still rather below normal form.

The big six at the top of the medium-wave band are coming through wonderfully well at present. These are Prague, Florence, Brussels No. 1, Vienna, Munich and Budapest. Beromunster is still jammed, but Rome, Stockholm, Katowice, Langenberg, Leipzig and Toulouse are quite reliable. Other stations that I can recommend are Brussels No. 2, the Poste Parisien, Göteborg, Marseilles, Heilsberg, Frankfurt and Gleiwitz.

D. EXER.

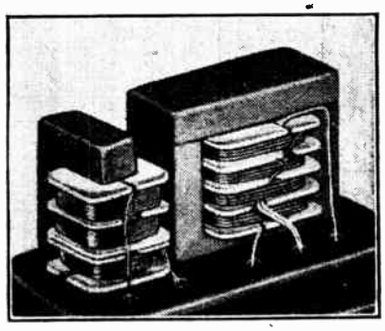
How Ferrocart is Made

The Reasons for High Efficiency

By ALFRED SCHNEIDER

So much interest has been aroused over the "Wireless World" Ferrocart III receiver that readers will welcome an explanation of the intricate processes involved in manufacturing the iron core of the new tuning coils. It will be evident from the accompanying description that the invention of Ferrocart has entailed much research along original lines.

IT is one thing to know what combination and arrangement of materials will produce the scientific ideal; it is another to find a means of making the scientific ideal commercially attainable. Thus, theoretically speaking, it has been recognised that very thin iron wire, insulated and wound in the direction of the magnetic flux, should give the highest permeability at lowest losses, but until recently there have been formidable practical objections — a fact of which the inventor of Ferrocart was made keenly aware when he first began experiments with insulated iron filaments. His calculations proved that the diameter of his wire, to give worthwhile results, would have to be less than 5μ, i.e., 0.005 mm! Now filaments of this gauge must be of special alloy, and, moreover, the difficulties of drawing them out were found to defeat all schemes for producing a marketable article.



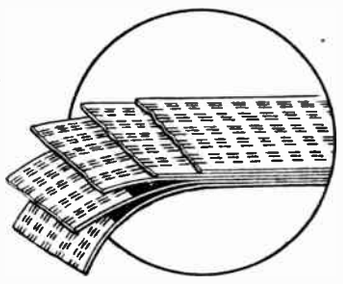
Complete tuning coils built up of sectionalised windings on iron cores. Separate inductances are used for long and medium wavebands.

An Ingenious Process

So Hans Vogt, the inventor, sought around for other means, finally resorting to the use of powdered iron particles, which form the basis of Ferrocart.

A glance at the drawings will make the process of construction quite clear. Insulated damp iron particles—ellipsoid in shape—are poured on an insulating paper strip and then passed through the teeth of a comb, which divides them into rows. When the paper travels through a D.C. solenoid coil the magnetic flux aligns the particles in the direction of the strip, after which they are dried in position. The coil cores are built up of many layers of these paper strips, which are held together by a binding substance.

It will be realised that the finished product comes very near to the ideal of an insulated filament wound in the direction of the magnetic flux. The insulated filament effect is, as it were, "imitated," the more so as the magnetic alignment also causes the particles to separate transversely, due to their mutual repelling force caused by similar polarity. Moreover, the magnetic alignment confers the additional advantage that the end surfaces of the particles, which are difficult to insulate, are directed longitudinally, so that metallic contacts do not encourage eddy currents, and improve magnetic conductivity.



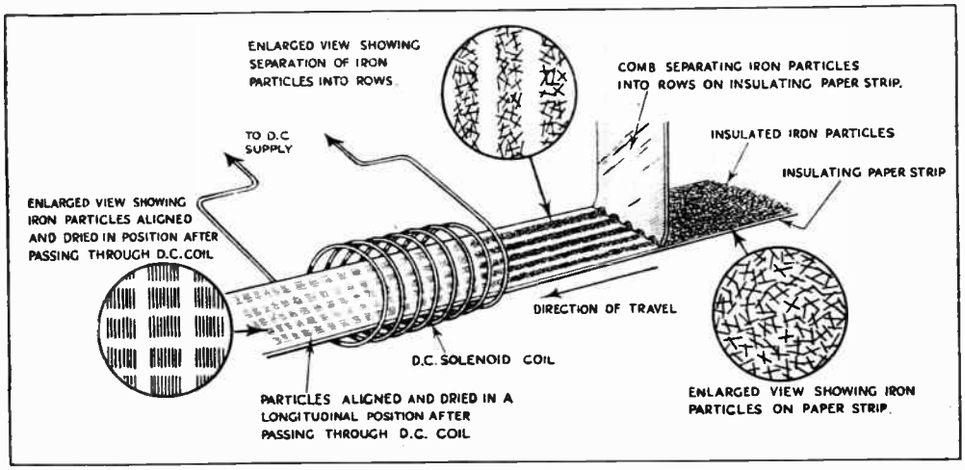
A sketch showing how the core is made up of paper laminations

Why, it may be asked, is it necessary to introduce extra insulation by grooves and paper? It should be noted that the insulating "skin" of each particle is necessarily very thin because of the amount of iron required to obtain enough permeability. Therefore, although this contact resistance is fairly high, the particles still require some sort of sub-division.

Capacitive Coupling

But besides preventing eddy current losses the paper layers and grooves fulfil another function. Many research workers have expressed the opinion that coil losses cannot all be ascribed to hysteresis and eddy currents, but that an unknown additional source of losses exists. Mechanical movements of the particles in the insulating matrix have been proved not to be responsible, and Hans Vogt, the inventor of Ferrocart, eventually traced the losses to "capacitive eddy currents" flowing in each particle. Each pair of magnetic particles forms a miniature condenser, the insulating skin representing the dielectric and the two particles the condenser plates. Thus a capacitive coupling is formed and the eddy current, unable to flow normally owing to the insulating skin, passes as a dielectric displacement current from particle to particle.

This is the fundamental discovery on which the Vogt iron is based. The rows of particles and the paper together combat these capacitive losses in a way which no other coil composition has been able to accomplish.


ENLARGED VIEW SHOWING SEPARATION OF IRON PARTICLES INTO ROWS
COMB SEPARATING IRON PARTICLES INTO ROWS ON INSULATING PAPER STRIP.
TO D.C. SUPPLY
INSULATED IRON PARTICLES
INSULATING PAPER STRIP
ENLARGED VIEW SHOWING IRON PARTICLES ALIGNED AND DRIED IN POSITION AFTER PASSING THROUGH D.C. COIL
DIRECTION OF TRAVEL
D.C. SOLENOID COIL
PARTICLES ALIGNED AND DRIED IN A LONGITUDINAL POSITION AFTER PASSING THROUGH D.C. COIL
ENLARGED VIEW SHOWING IRON PARTICLES ON PAPER STRIP.

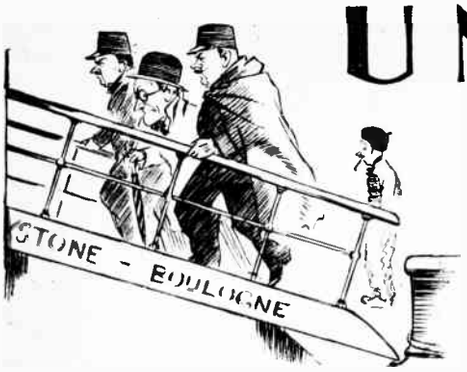
How the aligning process of the small iron particles in Ferrocart is carried out. The paper strip carrying the particles travels under a comb, which separates them into rows, and the magnetic field in the solenoid causes longitudinal alignment.

The practical application of Ferrocart to the design of a receiver is shown in the

FERROCART III

the first receiver to incorporate Ferrocart coils. This set was described, with full instructions for building, in our issue of March 3rd. The efficiency is remarkable and, in particular, the selectivity is so high that it comes near to rivalling the super-heterodyne.

UNBIASED



Unforeseen circumstances.

Back Again Soon

I REGRET to say that I am at present unable to obtain the necessary Editorial permission to disclose the nature of my recent mission abroad. As a matter of fact, I don't know that I altogether want to do so myself. I had anticipated being away several weeks, but certain unforeseen circumstances arose to bring about my discomfiture, and a hasty return home has been necessary. At the moment I do not feel in a suitable frame of mind to dwell on the topic.

An Impending Apology?

FOLLOWING the lead given by the B.B.C., it seems to have become quite the rage to skate on the thin ice of European politics, the latest offender in this respect being the Editor of this journal, although, as usual, I get the blame for it. I am moved to make this profound observation by a letter I have received from an indignant native of a small European country demanding to know why none of his national stations are included on the calibrated dial of the "*W.W.* Station Finder."

I have made diligent enquiry, and find that the country in question possesses no broadcasting stations. The whole affair is rather mysterious, and looks to me like a deliberate attempt to embroil this country in a diplomatic "situation." I have replied tactfully, however, agreeing to have the stations marked on the dial if my correspondent will come over and tune them in for me.

Record Changing

I WAS talking the other week about the way in which the average woman allows the radio set—especially the mains-driven type—to drool on all day to form a sort of background to her general activities. Certain highbrows attacked me fiercely for my remarks, declaring that no such state of affairs existed, and that even if it did I should not have encouraged it by talking about it. I was, however, warmly commended by manufacturers and vendors of sets, who stated that the "daily drool" type of person was by far their best customer. In any case, they argued, why should this very considerable portion of listeners be harried by the rest.

Now, judging by some remarks which certain highbrows of the gramophone world have been making lately concerning record changers, I think that they would do well to take the words of experienced radio manufacturers to heart. They have been attacking the cry that has gone up from all sides for the marketing of record changers which play both sides of a record. Although admitting the existence of such things and attacking them on the grounds of cost, bulk, and reliability, their chief argument against marketing them is that they take an unduly long time to change the record, and, in any case, sets of records embodying complete symphony concerts and other musical works can be bought suitably arranged for "single-sided" record changers.

Now, I contend that the "daily drooler," who is really the best customer of the gramophone as well as of the radio people, doesn't care a hoot about a few seconds extra in changing the tune or about complete musical works so long as he or she can load the old machine up so that it will play sixteen or more tunes without attention instead of the customary eight. When this can be done, the gramophone will be more on a par with radio in the matter of drooling all day without attention.

As for the arguments about cost, bulk, and reliability, they strike me as being particularly petulant and childish, for what on earth do the various companies maintain costly research departments for? Nothing was more bulky, unreliable, or damaging to records than the original form of "single-sided" record changer, and yet these difficulties were overcome. At any rate, if those whom it concerns don't

Loading up the old machine.

do something soon, the people who are advocating the use of spiral tracks on "endless" films will be leaving them behind.

Tell Me Your Troubles

I HAVE been rather troubled of late by finding an unusually large number of anonymous letters in my daily post bag. Now, this sort of thing I definitely dislike, notwithstanding the fact that urgent considerations make it necessary that I practise it myself.

By

FREE GRID

If, of course, any reader is wanted by the police, or is *in extremis* in any other way that renders it imperative for him to keep his whereabouts a secret, I do not expect him to take me into his confidence, but it would be at least polite if he mentioned in his letter that valid reasons existed for his not signing his correspondence. Having myself, in a small way,

Helping a "wanted" reader.

experienced the terrors of the hunted, I will willingly show my sympathy by meeting any "wanted" reader underneath the blasted oak at midnight or at any other rendezvous appointed by him in order to bring him money or a change of clothing as he may desire.

Trolley Buses for Olympia

THE query, "Is the menace real?" which I raised on January 13th, has been answered in no uncertain fashion, for shoals of letters containing vitriolic affirmatives have descended upon me. In particular, a large number of indignant householders have written to me to repudiate the suggestion that the P.O. engineers have cured the trouble in certain districts.

It is, I think, a significant fact that at the great anti-interference demonstration given by the G.P.O. at the Olympia Radio Show last year, trolley buses were conspicuous by their absence, although the young men in attendance showed us how to rid ourselves of interference from almost every other type of electrical contrivance, including even a traffic signal. There was no real excuse for the absence of trolley buses, for a large part of the National Hall at the back of the G.P.O. stand was unused. In any case, they could, with advantage, have run right round the exhibition on sightseeing tours for the benefit of those people who wished to avoid the crush.

NEWS *of the* WEEK

Current Events in Brief Review

Hot Jazz Banned

HERR RICHARD KOLB, acting Director of Programmes at the Berlin stations, has banned all jazz music of the "hot" variety.

Modernising Blackpool

IT is proposed to form a wireless club in the Blackpool district. All interested in the project are requested to write to Mr. Gordon F. Howard, 43, Cumberland Avenue, Blackpool.

Bullet-proof Broadcasting

PRESIDENT ROOSEVELT, whose broadcast speech was so excellently received in this country, has been presented with a special bullet-proof desk with four microphone points by the Columbia Broadcasting System.

Germans Only

ALL foreigners are now barred from German broadcast microphones in view of the general crisis and, to prevent misunderstandings, all persons using pseudonyms are asked to permit the announcement of their real names.

King of the Castle

A SMALL squad of men suddenly appeared at the Berlin broadcasting house last week and hoisted the Hitler banner. Our Berlin correspondent states that the "Hakenkreuzflagge" is also flying from the Berlin Funk Tower.

New Zurich Studios

DURING the removal of the Zurich broadcasting headquarters to the new studios, the Beromunster station is taking all its programmes from the studios at Berne and Basle. The new Zurich studios will open with a special programme on April 10th.

£2,833

IN the House of Commons last week Sir Kingsley Wood, the Postmaster-General, stated that the number of wireless receiving licences issued during the year 1932 was approximately 5,263,000. The number of prosecutions undertaken during the same year for the use of unlicensed wireless sets was 2,825, and the total amount of the fines and costs imposed was £2,833.

Prize for an Invention

INVENTIVE wireless men may find scope for their talents in a competition which is being organised by the Royal Society of Arts under the Thomas Gray Memorial Trust. The Council offers £100 to any person who may bring to their notice a valuable improvement in the science or practice of navigation proposed or invented by himself in the years 1932 and 1933. The competition closes on December 31st, 1933.

Easy Payments

BECAUSE of the economic crisis, the Yugoslavian postal authorities have introduced a monthly instalment system for the purchase of wireless licences.

Programmes in Braille

THE Braille *Radio Times* in this country is to have a counterpart in Holland, where the Amsterdam Braille Society has produced a wireless programme journal for the blind.

60 kW. from Kalundborg

THE Kalundborg 7.5 kW. transmitter is about to be replaced by a new 60 kW. plant, while Copenhagen, which at present operates on a power of only 0.75 kW., will be increased to 10 kW.

The Virtuous Class

OUR belief that crystal-set owners are fundamentally honest is confirmed by the investigations of the postal authorities at Brno, Czechoslovakia, who, in the course of an "anti-pirate" campaign, have discovered a far higher percentage of offenders among valve users than those who depend on the lowly crystal. Of course, it is more expensive to be virtuous when running a valve set.

Transatlantic Radio Chain

THE first wireless chain across the Atlantic may materialise in May next if present plans are carried out for the flight from Rome to America of between twenty and thirty Italian airplanes. It is proposed that the route should be covered by Fleetwood trawlers stationed at intervals between the Irish Channel and the North of Ireland, Iceland, Newfoundland, and the North Atlantic coast of the United States. The trawlers would be fitted with long-distance wireless transmitters and receivers.

New Swiss Regional

SWITZERLAND'S third great Regional station, that at Tessin, in the Italian-speaking part of the country, is to begin regular service on April 1st next. The wavelength will be 678.8 metres.

Jap Propaganda by Radio

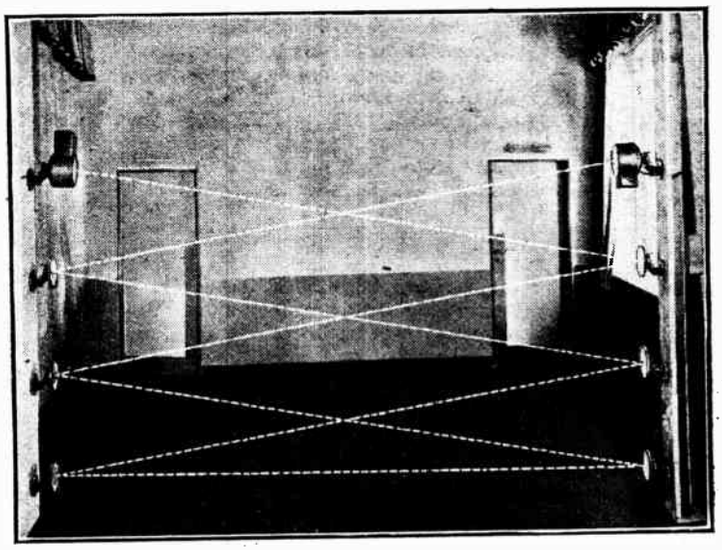
A JAPANESE high-power station for the dissemination of propaganda throughout Europe is a new project, according to a correspondent, who states that arrangements are being made to relay the transmissions from certain German stations.

The "Wave-waker"

THE "wave-waker" is the name given to a new oscillatory valve instrument on which the Belgian Princess Jacques de Broglie and the composer Oboulhoff are putting the finishing touches. It seems that the instrument is played by means of a hand-capacity effect, as in the case of the Theremin.

The Lucerne Plan

THE possibility that the new Lucerne Plan may introduce the time factor in the allocation of broadcast wavelengths is suggested in the Belgian newspaper, *Le Soir*. According to a correspondent who interviewed M. Raymond Braillard, the Technical Secretary of the U.I.R. hinted that in some cases wavelengths might be authorised for certain stations only at certain times of the day. An increase in the number of "common" waves is also probable, though the allocation of these will call for very careful consideration of distance and power.



INVISIBLE FENCE. To counter the tricks of athletic burglars who may suspect the presence of the familiar single infra-red detection device the Siemens and Halske Company of Germany has produced a new equipment in which the ray is reflected to and fro in the directions shown by the dotted line in the picture. The mirrors are, of course, concealed when the apparatus is in use.

Tactful

"SIR,—Will the parents who bought a wireless set to put in baby's stocking at Christmas kindly refrain from allowing baby to twirl the knobs between the hours of 12 noon and 12 midnight."—Extract from correspondence column, *Sunderland Echo*.

Gramophone Test Case

A WRIT has been issued by the Gramophone Company, Ltd., against Messrs. Stephen Carwardine and Co., Ltd., the well-known caterers of London and Bristol, for performing in public, without authorisation, at their restaurant in Bristol, a "His Master's Voice" record, of which the copyright is vested in the Gramophone Company, Ltd.

This action will act as a test case and will be heard at the High Court of Justice in London in due course.

Troubled Waves

IT is sad to learn that the broadcasting stations of Southern Europe are engaged in a kind of guerrilla warfare to prevent the spread of various political opinions beyond the borders of their respective countries. Apparently the broadcasting of any particular point of view immediately sets mysterious forces in operation; indeed, it is suggested that interference which many listeners in this country may ascribe to natural causes, such as atmospherics, and semi-natural, such as sideband splash, are in truth produced by the political oscillators of the warm South.

We refrain from mentioning the names of the countries involved, having no desire to foment international strife, but we feel that the International Broadcasting Union would be serving the best interests of all European listeners by investigating the whole question of deliberate interference between one station and another.

The Leipzig Fair

THE first German commercial receiver using Ferrocart coils was on view at this year's Leipzig Fair (writes a correspondent). The set, which is produced by the well-known firm of Owin, is decidedly in the miniature class, though it covers three wave bands: short, medium and long. This seems a general feature in the latest German sets. Visitors also saw a peculiar radio-gramophone, the Schaub, incorporating the turntable at an angle of about 60° in order to make for compactness. This tilting of the gramophone record does not impair the quality of reproduction.

Home recording apparatus is less popular and was represented by only one exhibit.

The Siemens firm displayed a master clock which is automatically controlled by the Nauen time signal, by means of a single wavelength receiver. They also offered the public a portable reverberation meter and a noise-measuring instrument.

Broadcast Brevities

By Our Special Correspondent

A Broadcasting Film

A GENTLEMAN with a notebook has been making sudden appearances in different parts of Broadcasting House during the past few weeks, asking polite questions and jotting down the equally polite answers. He is a representative of the Empire Marketing Board, and he has been charged with the mission of finding suitable material for a real live talkie.

Desperate Proposal

The job is not quite so simple as might appear, for I hear that, with a few notable exceptions, everybody in Portland Place wants to play a star part in the film. All sorts of outrageous proposals have been made; one man who works at an unromantic office desk far from the glamour of the studios is so anxious to appear on the screens of the Empire's picture palaces that he has offered to stage a fake telephone conversation with anybody the E.M.B. cares to name.

Hopeless Quest

A broadcasting film is certainly needed, if only to enable the listening public to see the interior of Broadcasting House, for the visiting list has had to be closed. Any plain, honest licence holder who wants to see inside "B.H." would find it easier to arrange a tea party with the Llama of Tibet.

Strange Pair

HARRY TATE and Hindemith will be associated in an effort to entertain the public on Friday next, March 24th, when Hindemith's musical work, "The Lesson," is broadcast from London Regional.

"The Lesson" nearly caused a riot at Baden-Baden when it was first performed there in 1929; apparently the emotional qualities of the work overcame the audience during a touching scene in which the hero —an airman dying after a crash—engages in dialogue with a troop of clowns.

In the broadcast version Harry Tate will be the chief clown.

"Stars in their Courses"

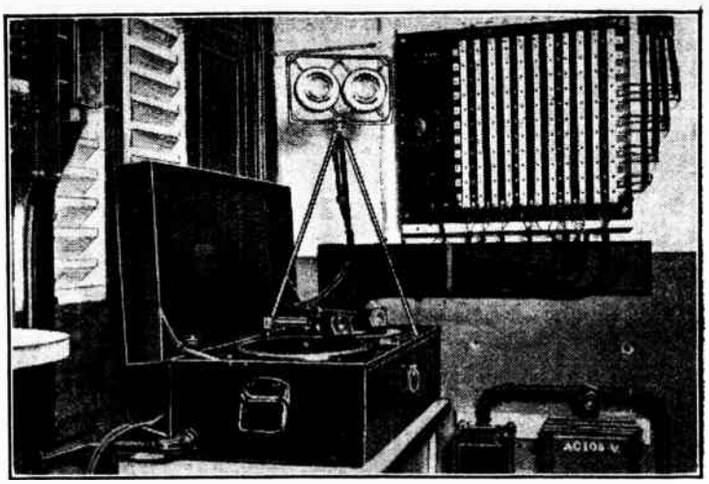
THE Blattnerphone and the gramophone are both being resorted to for the very attractive series of broadcasts entitled "Stars in their Courses," which Mr. James Agate, the well-known dramatic critic, will *compère* on twelve Saturday evenings, beginning on April 8th.

Dame Madge Kendal, Sir John Martin-Harvey, Miss Hilda Trevelyan, Mr. Seymour Hicks, Miss Irene Vanbrugh, Miss Fay Compton, Sir Frank Benson, and others whose names are familiar as household words, are to visit Broadcasting House and record on the Blattnerphone extracts from their greatest stage successes.

How the Gramophone will Help

Sir Johnston Forbes-Robertson will be represented by an excellent gramophone record; similar records will project the voices of those great artistes of the past, Lewis Waller, Arthur Bourchier, and Sir Herbert Tree.

Miss Sybil Thorndike, who is at present in Australia, has given special permission for the use of a gramophone recording of her voice.



AT THE BLACKPOOL TOWER, famous for its dance broadcasts, the British Thomson-Houston Company has installed what is probably the biggest band and gramophone relay system in the country, giving a total undistorted output of 280 watts. The photograph shows the switchboard, which links up forty-four electro-dynamic speakers and ten microphones distributed over the Tower, Winter Gardens and Palace.

Two Big Concerts

LEST we should hear too much of the B.B.C. Orchestra the Corporation is wisely varying the diet. On April 7th Sir Thomas Beecham will conduct the London Philharmonic Orchestra at the Queen's Hall in the Handel Concerto Grosso in G and the Seventh Symphony, by Schubert. At this concert, which will be broadcast over the National transmitters, Ildebrando Pizzetti will conduct the first performance in England of his celebrated "Rondo Veneziano."

A Famous Choir

On April 8th Regional listeners will hear the Glasgow Orpheus Choir at the Queen's Hall, London, under the direction of Sir Hugh S. Roberton. The Philharmonic Orchestra will also be broadcast on the same evening.

Organ as Orchestra

THE Midland Region is fortunate in having several organists of first-class quality within its area. Relays of their recitals are always popular. One of their number, Bernard Johnson, of Nottingham, is including two of his own compositions, a canzonet and a caprice, in his recital on April 2nd. Constance Collier and he will play the Beethoven Pianoforte Concerto in G minor, the organ acting as substitute for an orchestra.

Blattnerphoned Programmes

"MIDLAND Regional has always aimed at keeping faith with its public," writes Mr. Percy Edgar, the Midland Regional Director, in a letter on the question of Blattnerphoned programmes, to which I referred in the issue of March 3rd. He adds: "In the three industries where industrial noises have had to be Blattnerphoned, the Press have been duly informed and have recorded the fact."

I am glad that the Press has obliged in this fashion, but I still feel that the microphone is the proper channel for explanations of this kind.

A Tribute to the Factories

Mr. Edgar states that, of the twenty-two industrial broadcasts from Midland Regional, only three have been Blattnerphoned. He mentions that the B.B.C. have received the greatest courtesy from the principals of big works, several of whom arranged to have machines running and operatives at work in order that the evening broadcasts should be realistic and convincing.

St. George's Day

ST. GEORGE'S DAY and Zeebrugge Day will be the occasion of a relay from St. Mary's Church, Dover, on Sunday, April 23rd. The transmission opens with the bells of St. Mary's, followed by the service in the church at 11.0 o'clock. At the mid-day ceremony outside the church the Mayor of Dover will strike eight bells on the Zeebrugge bell, which is being hung in the porch of the church specially for the broadcast. The ceremony concludes with the Last Post and Reveille.

In the Concert Hall

DESPITE its description, the Concert Hall at Broadcasting House takes on the intimate atmosphere of a richly illuminated lounge when a Chamber Music Concert is being broadcast. Lamond, the pianist, and Carl Flesch, the violinist, were playing the evening I was there, and they played to us, the audience. The microphone was forgotten. Yet I am told that the concert—all-Beethoven, by the way—came over particularly well.

Probably instrumentalists are well advised to forget the existence of the microphone; singers and talkers, however, are in a different category.

The Artiste and the Microphone

Do we in this country really understand the first thing about microphone technique? Can we project personality over the ether as the Americans manage it?

I am not considering the quality of the personality when I say that the average American broadcaster gets his personality right across the microphone and into the home, whether we like it or not.

A Happy Discovery

Last week we heard those artistes, "The Four Musketeers," an American quartet who treat the microphone with respect, not as a harmless necessary piece of furniture. I saw the glee on their faces when they discovered that they were to do their turn before a Columbia "mike"—the sort they were used to at home. Even little things like that count with the true artiste.

Coaxing the Mike

They caressed that microphone. I watched them coax it, smile at it, withdraw from it for the high notes, come back to it confidentially for the soft tones. (They weren't trusting any control engineer!)

I wish we had some microphone artistes of our own. In the meantime it is worth noting that the B.B.C. are giving The Four Musketeers another "date" very soon.

Practical HINTS and TIPS

AIDS TO BETTER RECEPTION

IT is quite a common fallacy to suppose that the adjustment of a trimming condenser will compensate fully for differences in the inductive values of the various coils included in a gang-controlled receiver. Actually, all that the trimmers can do is to bring the various circuits into resonance at any chosen wavelength; unless all the inductances are accurately matched there is bound to be a more or less serious lack

Long-wave Ganging

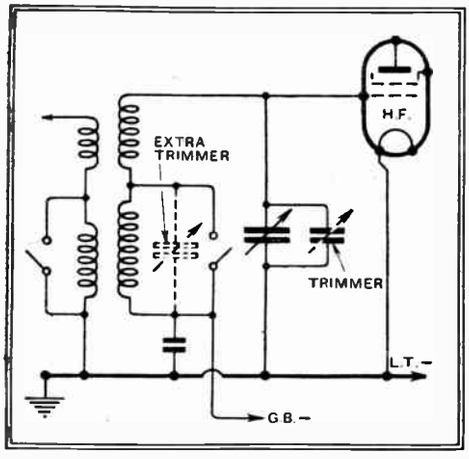


Fig. 1.—An extra trimming condenser for the partial correction of ganging errors on the long waveband.

of alignment at all wavelengths except that at which the trimming adjustment is made.

This applies, of course, to both the medium and long wavebands. But, with regard to the latter, requirements are not usually so exacting, and considerable discrepancies in inductance values may pass unnoticed, except in comparatively rare cases where extreme efficiency is required on this band.

The usual procedure is to adjust the trimmers at a low wavelength on the medium band, and then to assume that everything will be properly aligned for long-wave reception. Whether or not this is so can be easily proved by switching over to the long waves; if signal strength can be improved by adjusting any one of the trimmers we have conclusive proof that the associated circuit is running out of tune with the others.

If it happens that extra capacity (clockwise rotation of the trimmer screw) is necessary to increase volume it is worth while considering the expedient of connecting an extra trimming condenser across the long-wave section only of the associated coil, as shown in Fig. 1.

The presence of this extra trimmer will in no way upset ganging on the medium band, as it is entirely short-circuited by the action of the usual wave-change switch. Neither will it ensure perfect alignment of the circuits, for the reason stated in the opening paragraph. But it may well bring about a worth-while improvement in general long-wave performance by reducing the average extent to which the circuit across which it is connected is out of tune with the others.

A semi-variable condenser with a maximum capacity of not more than 0.0001 mfd. will generally be about right for the purpose suggested.

MANY sets are fitted with alternative aerial sockets or terminals; as a rule, one of these is internally connected directly to a tapping or primary winding on the input-coil assembly, while the other is joined to the same point through a small series condenser. Of course, it is intended that the second terminal shall be used when it is desired to reduce aerial input in order to obtain immunity from interference.

Alternative Aerial Connections

When using *The Wireless World* Station Finder (January 13th and January 27th) with such sets, it is invariably best to make use of the directly-connected and least selective aerial connection on the receiver while identifying stations. The inclusion of a very small series condenser will increase the impedance of the aerial circuit, and may prevent the obtaining of sufficiently well-marked indications by absorption. As soon as an identifying reading has been taken there is obviously no objection to reconnecting the aerial to the more selective terminal if interfering transmissions should make this course necessary.

ONE cannot go very far in matters pertaining to wireless reception without encountering the need for some means of ascertaining definitely whether continuity—or a through metal circuit—exists between two points in a receiver, or between the terminals of some component or accessory. For years past a pair of head telephones and a dry battery have been widely used as a crude but effective form of aural indicator to show conductivity—or the lack of it.

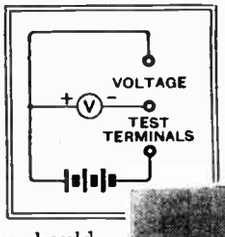
Continuity Tests

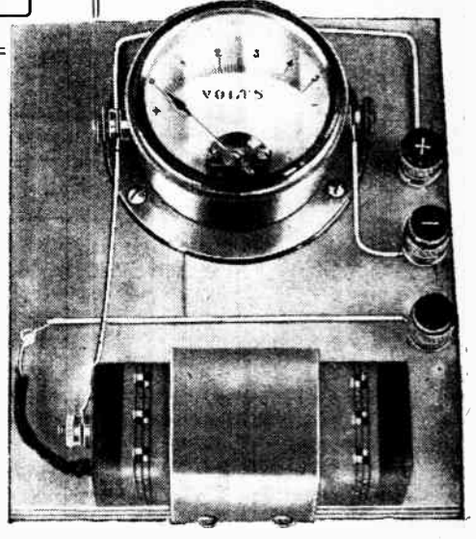
But now the headphone has almost disappeared, and as the loud speaker is but a poor substitute for testing purposes we must look for something else from which a continuity indicator can be improvised.

As a relic of the days when their sets were operated from batteries, many readers who have now changed over to "all mains" operation will have a spare low-tension voltmeter, probably reading from 0 to 6 volts, and of the moving-coil type. With the addition of a battery and a few terminals this meter may be converted into a useful testing device, ready for use at any time, and capable of showing continuity through resistances of many thousands of ohms. A 4.5-volt flash-lamp battery is generally suitable for testing, and is, of course, wired in series with the meter and the external circuit.

By arranging three terminals as shown in the accompanying illustration and diagram, the meter may be used either for its normal function of measuring voltage or as a continuity indicator, depending on the terminals to which the external leads are connected.

In a testing unit of this sort we have also a crude form of ohm-meter, but only one that will be reasonably accurate over a limited range of resistance values. The procedure for translating voltage readings on the scale to ohms is first to measure the voltage of the test battery directly, and then to read the voltage indicated with the unknown resistance interposed in circuit. Then subtract "voltage indicated" from "measured battery voltage," and multiply the remainder by the internal



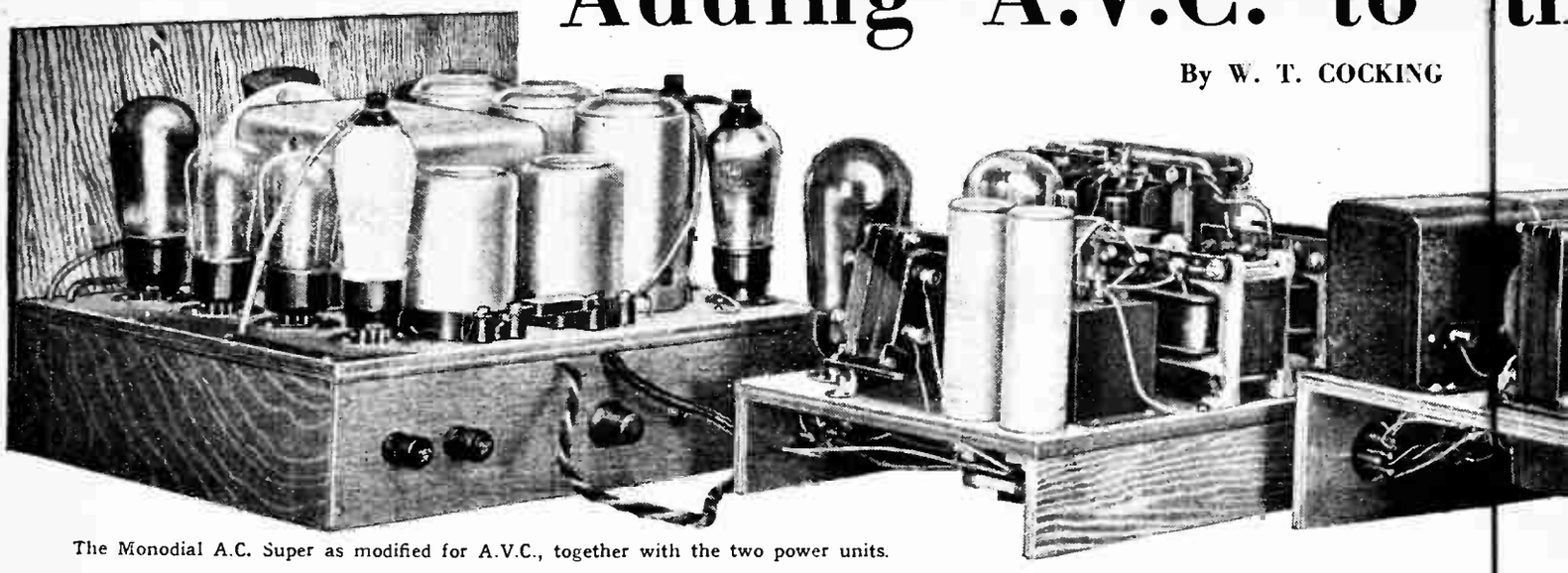


A low-reading voltmeter and a dry-cell mounted as a continuity testing unit. By making connections to the terminals indicated, the meter may be used normally for voltage measurements.

resistance of the meter. Finally, the product of the last calculation, divided by "volts indicated," which will give the value of the resistance in ohms.

Adding A.V.C. to th

By W. T. COCKING



The Monodial A.C. Super as modified for A.V.C., together with the two power units.

Part 1. Modifications Necessary for Converting the A.C. Superheterodyne

FADING is one of the chief obstacles to successful distant reception, and any method by which it may be considerably reduced is bound to be appreciated. In the accompanying article appear details of the first constructional set to include automatic volume control which, it can be confidently stated, removes some 80% of the effects of fading.

SINCE the description in this journal of practical automatic volume control systems, constructors of the Monodial A.C. Super have been clamouring for details of the modifications necessary for the inclusion of this refinement. The high performance of this receiver has led many to feel that fading, and not interference, is now the chief drawback to distant listening, and that the inclusion of an automatic volume control would largely overcome this effect, and so increase the number of stations from which reproduction of entertainment value can be obtained.

The matter has been given very careful attention, therefore, and many practical forms of automatic volume control have actually been tried out in the Monodial, in order to determine the particular type of control most suited to its characteristics. It may be said, briefly, that the square-law[1] control has been found to be the best for this set—partly because it can hold the volume at a more nearly constant level than any other, and partly because it fits in best with the characteristics of the Monodial.

No Fundamental Alterations

Some words of explanation may be necessary regarding the course adopted in describing the first practical automatic volume control system as an addition to an existing receiver, instead of including it in an entirely new design. In the first place, it is thought that, in view of its present unfamiliarity, constructors will be more likely to meet with success in applying it to an existing receiver, which is known to be functioning correctly, than if they have to tackle the problem of getting the system to work in a new and untried set. Secondly, although it is now nearly a year since it was first described, the performance of the Monodial is so far in advance of its time that it is doubtful whether any great improvement could be made to the receiver itself, and, as a result, a new set would vary only in unessentials. Thirdly, so many of these receivers have been built that it is felt that they should not be rendered in any way out of date by being without this latest development of automatic volume control.

The actual work of alteration is not great, and, once made, there is no external apparatus. The alterations involve a certain number of additional components, and the rearrangement of some of the existing parts, but it has been found possible to include all the apparatus on the original chassis without increasing their dimensions, so that existing cabinet work remains unaffected.

The complete circuit diagram of the receiver unit is shown in Fig. 1, and it will be instructive to compare this with the original circuit.[2] It will be seen that there are no fundamental alterations, and the principle of operation is identical with that of the original receiver. Instead of being connected directly to earth, however, the input and H.F. intervalve tuned circuit return leads are each broken, and these circuits completed through 0.1 mfd. condensers C5 and C9. The A.V.C. bias is then applied to the lower ends of the tuned circuits through decoupling resistances.

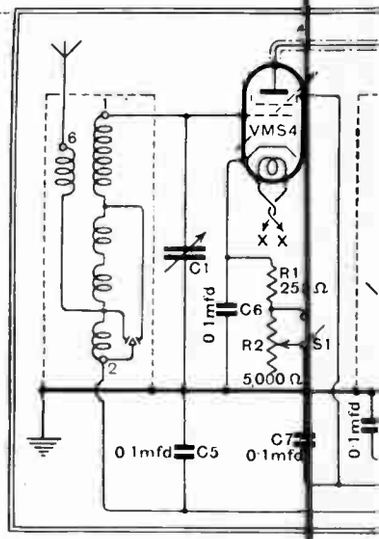


Fig. 1.—Complete circuit diagram of the receiver unit. The 354V valve provides square-law A.V.C.

Each valve is now independently biased, as regards its minimum value, by a resistance in its cathode lead. In the case of the first detector, the resistance R4 is given a value of 2,500 ohms, since a V.M.S.4 variable-mu valve is now employed, and controlled by the A.V.C. system. The I.F. stage has its minimum bias fixed by the 250 ohms resistance R7, shunted by the 0.1 mfd. condenser C14, while the same values are employed in the H.F. stage for R1 and C6 when the switch S1 is closed.

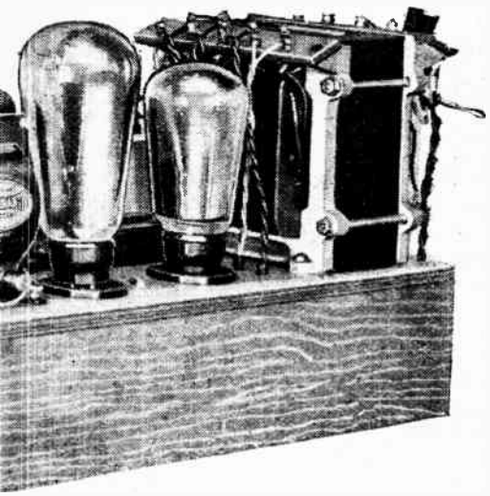
The Noise Suppressor

This switch, which was the Local-Distance switch of the original design, is connected in parallel with a 5,000 ohms variable resistance R2, and both are in series with the bias resist-

[1] "Practical Automatic Volume Control." *The Wireless World*, January 6th and 13th, 1933.

[2] "The Monodial A.C. Super." *The Wireless World*, April 6th, 13th and 20th, 1932, or "The Monodial A.C. Super Booklet."

MONODIAL



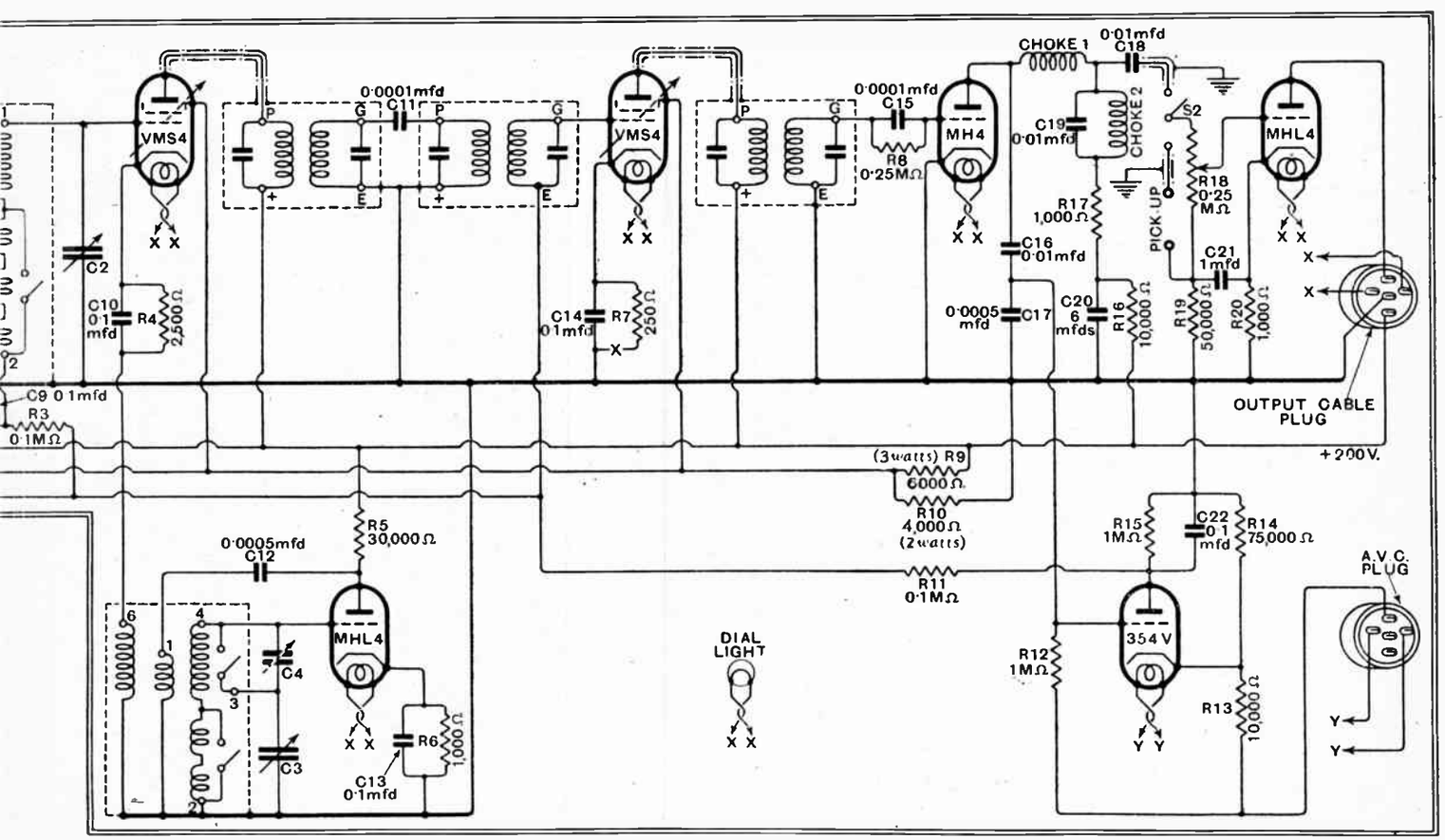
ance R1; the actual component used for R2, incidentally, is the volume control of the original set. The purpose of this arrangement is to act as a background limiter, or noise suppressor, while tuning. It will be appreciated that in the absence of a signal, and with S1 closed, the sensitivity of the set is at its maximum, and atmospherics and local interference are reproduced at full strength. As soon as a signal is tuned in, of course, the sensitivity drops and the background falls to the normal level found with a set having a manual sensitivity control. When actually tuned to a station, therefore, A.V.C. causes no increase of background, but during the process of tuning such a set is definitely noisier, for the sensitivity rises sharply as the tuning is varied between stations.

The additional bias resistance R2 is included, therefore, so that the maximum sensitivity of the set can be limited on occasion. It is recommended that the switch S1 be opened, and at the start of an evening's listening R2 be adjusted to such a value that the background, with the set mistuned from a station, is no greater than can be tolerated. Thereafter, only stations which are stronger than the background will come in at full strength, and these, of course, are just those which are worth while from an entertainment point of view. The resistance is made readily adjustable, since the background level, and hence the usable sensitivity, vary from night to night, and the switch is included so that the resistance can be cut out of circuit in a moment whenever the maximum sensitivity is required, as might be the case when following a strongly fading signal. These two components are fitted to the back of the chassis, since they require only occasional adjustment, but there is no objection to bringing them to the front panel if desired, provided that screened wire be used for the connections.

In connection with the alterations, it should be noted that the I.F. transformer secondary feeding the I.F. valve is no longer returned directly to the chassis, but is taken to the A.V.C. feed. The compensating resistances in the screen feed circuits are now done away with, since they are inapplicable to A.V.C.; their place is taken by a simple voltage divider of fairly low value, and it must be remembered that the 6,000 ohms resistance R9 is of the 3 watts type, while the 4,000 ohms resistance R10 is of 2 watts rating. Owing to the low values adopted for these resistances, the rise in screen and anode potentials at high bias voltages is limited.

The Second Detector

In the detector stage, the chief alteration lies in splitting the anode-cathode by-pass condenser into two series condensers, C16 of 0.01 mfd. and C17 of 0.0005 mfd., from the junction of which the I.F. feed to the A.V.C. valve is tapped off. The detector is now worked at rather a higher signal input than before, and its power handling capacity has consequently been increased by reducing the decoupling resistance R16 to 10,000 ohms. A 1-watt resistance can be used, but as there is a 2-watts resistance available from the original components, this is employed. This decrease in resistance has necessitated an increase in the decoupling condenser C20 to 6 mfd. This condenser is actually made up of two in parallel: the original 2 mfd. type BB condenser, and a 4 mfd. type LSA previously used in the power unit. In this connection it should be noted that the type LSA is unnecessarily good for this point, and it is only used because it is available from the original components. If entirely new parts are used throughout, a 4 mfd. type BB is entirely suitable



Adding A.V.C. to the Monodial—

and cheaper. The LSA condenser will not be available in a conversion of the Monodial used with the Modern Straight Five power unit, so that in this case also a type BB should be used.

The tone corrector stage remains unaltered, save that the grid circuit is now decoupled by the 50,000 ohms resistance R19, and its grid leak is replaced by the manual volume control, which is operative on both radio and gramophone, R18 of 250,000 ohms, and is of the tapered type. Actually, of course, such decoupling is not fully effective in a resistance coupled stage, and the inclusion of the component is more for the purpose of avoiding any possibility of hum due to ripple on the bias resistance than for decoupling proper.

The valveholder originally used for the second detector is employed for the A.V.C. valve, and the second detector is now mounted in the place formerly occupied by the third I.F. transformer. This transformer is fitted beneath the baseboard, being mounted skew-wise on the end supporting batten, in such a position that its trimmers can just be operated. The wiring, furthermore, is sufficiently clear to allow the coil can to be removed for the adjustment of the coupling.

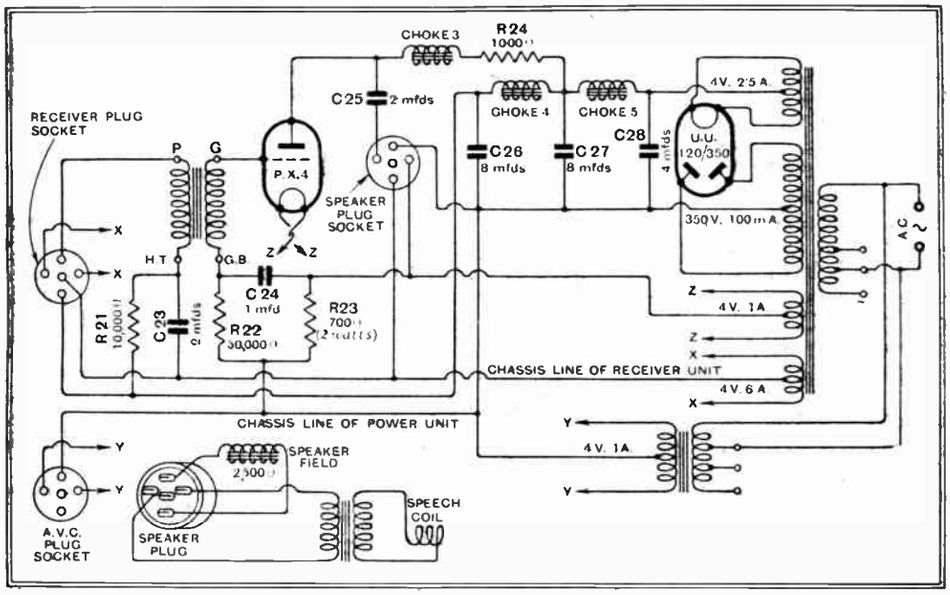


Fig. 2.—In the 2½-watt power unit the speaker field is included in the negative H.T. lead.

Delayed Action

The A.V.C. valve is the type 354V.; its anode is connected directly to earth through a 1 meg. resistance R15, shunted by a 0.1 mfd. condenser C22, and the bias voltages are tapped off from the anode and fed to the grids of the controlled valves through the 0.1 meg. decoupling resistances R11 and R3. The A.V.C. grid is fed directly from the tapping point on the second detector bypass system, and is returned to negative H.T., not the chassis, through a 1 meg. resistance R12. The correct bias to give delayed action to the control is obtained from a tapping on the voltage divider between negative H.T. and the receiver chassis, made up of the 75,000 ohms resistance R14 and the 10,000 ohms resistance R13. This voltage divider is actually in parallel with the speaker field, so that the voltage drop across this is utilised for the operation of the A.V.C. valve.

In the absence of a signal there is no A.V.C. anode current; there is no voltage drop across R15, therefore, and the grids of the controlled valves are at the same potential as the earth line. As a result, their bias is that fixed by their cathode biasing resistances. When a signal exceeding a certain strength is tuned in, rectification occurs in the control valve and anode current flows, its value depending upon the signal strength. A voltage drop is then present across R15, in such a direction as to make the A.V.C. valve anode, and hence the grids of the controlled valves, negative with respect to earth.

The 2.5 Watt-power Chassis

Perhaps the greatest alterations occur in the power unit, for in order to obtain the voltage needed for the A.V.C. valve the smoothing circuits have had to be entirely rearranged. The only voltage available is the drop across the speaker field, and so this is connected in the negative H.T. lead. In this position, however, it contributes little to the smoothing, and it has become necessary to introduce an additional choke. The resistance of this choke must be low to avoid a loss of voltage, and so its inductance is limited, so that considerable increases in the smoothing capacities have also been necessary. The arrangement finally adopted can be seen from Fig. 2. The choke Ch5 is that originally used, but its position on the chassis has been altered, and it has an inductance of some 10H. at 100 mA., with a resistance of some 120 ohms. It is now followed by an 8 mfd. electrolytic condenser C27, and the current for the output valve is then tapped off. The remaining 50 ma. of current passes through a 30H. 400 ohms. choke Ch4, after which there is another 8 mfd. electrolytic condenser C26. In connection with this choke, it is important to note that its actual inductance is 20H., although it is rated by its makers to be only 20H. It will not necessarily be satisfactory, therefore, to follow the maker's rating, and substitute a different type of 20H. choke.

In order to supply the heater of the A.V.C. valve, an additional mains transformer, giving an output of 4 volts at 1 ampere, has been included.[3] It will be clear from the drawings how room has been found for this component, and the method of interconnection of the two units will also be clear. The original valve-holder and 5-way cable do not give sufficient connecting points for the new arrangement, for three additional leads are required. Another valveholder is fitted to the back batten of the power chassis, therefore, and an extra 3-way cable makes the connections. Three-way cables are not at present available, but a four- or five-way type may be used with the unwanted leads cut short.

It should be noted that an omission occurs in the list of parts published in last week's issue; this consists of a Bulgin 30H. 50 ma. choke, type L.F.14.

(To be concluded.)

PARTS ORIGINALLY USED BUT NO LONGER REQUIRED

Receiver Chassis.

2 Metallised resistances, 1 watt 100 ohms
1 Metallised resistance, 1 watt 6,000 ohms
1 Metallised resistance, 1 watt 7,500 ohms
1 Metallised resistance, 1 watt 25,000 ohms
1 Metallised resistance, 1 watt 250,000 ohms
1 Fixed condenser, 0.001μF. **Dubilier Type 62**

2.5 Watts Power Chassis

1 Fixed condenser, 2 mfd., 500 v. D.C. test **Dubilier LS**
1 Metallised resistance, 25,000 ohms 3 watts

[3] It should be noted that if the complete set is being built from new components, two transformers are unnecessary, since the large transformer can be obtained with an additional winding.

THE NEW MANSFIELD JUNIOR CABINET, specially designed to house the P.M.S. loud speaker incorporating the latest type of magnet system. Made by the Whiteley Electrical Radio Co., Ltd., Victoria Street, Mansfield, Notts, the price of the complete cabinet loud speaker with output transformer is 29/6.

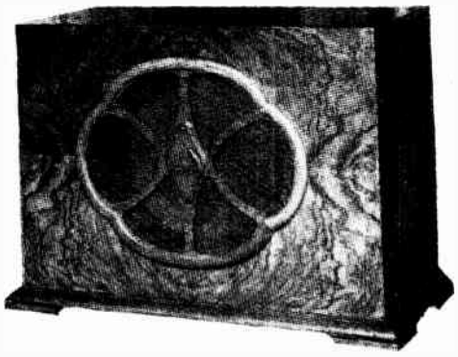
LABORATORY TESTS

H.M.V. "SUPER POWER" LOUD SPEAKER

DESIGNED originally for use with H.M.V. receivers and radio-gramophones, this permanent-magnet moving-coil unit is now issued for general use in an attractive walnut cabinet, together with a universal input transformer. The transformer may be adjusted for low-impedance triode or pentode output valves, for a push-pull output stage, or may be omitted altogether where an output transformer is already incorporated in the set.

The four-claw permanent magnet is fully twice the size of those used in the popular types of moving-coil units, and the sensitivity is correspondingly greater. A one-piece laminated linen diaphragm is employed, and the apex is pressed to form a shoulder for fixing the speech coil and to centre it in the air gap. The periphery of the diaphragm is mounted on a velvet surround giving more than the usual degree of freedom.

The bass resonance is at about 70 cycles, and above this frequency the output falls slowly to 1,200 cycles, rises to 2,500 cycles, and then falls gradually to 5,000 cycles, after which there is a relatively sharp cut-off. The general reproduction is full and mellow, and irritating background noises in radio and needle scratch in gramophone reproduction are absent.



H.M.V. "Super Power" permanent-magnet loud speaker model 174.

The price is £7 10s., and the makers are the Gramophone Co., Ltd., 363-367, Oxford Street, London, W.1.

THE DAVEY FIBRE NEEDLE PICK-UPS

THE gramophone enthusiast and connoisseur of fine records, whose experience goes back to the days before the introduction of electrical recording and reproduction, is a staunch advocate of fibre needles. He prefers the delicacy and smoothness of tone associated with the fibre needle to the hard brilliance and occasional harshness of the steel needle, and finds that, provided the record is properly cleaned, wear is negligible even though there may be a tendency to stiffness in the sound-box. Where the record collection includes favourite interpretations which are no longer issued, the latter consideration acquires added weight.

The Davey D.P.2 pick-up admirably fulfils these special requirements. A hollow armature of triangular cross-section pivoted on knife edges and centred by independently adjustable springs accommodates the fibre needle. The poles are of nickel-iron alloy, and the pole pieces are laminated. Two sectionalised formers surrounding the pole

NEW RADIO PRODUCTS REVIEWED

pieces carry the pick-up coils, which terminate in insulated terminals in the side of the substantial permanent magnet. The armature movement is free, and a wide air gap ensures freedom from harmonic distor-

Davey type D.P.2 pick-up for fibre needles.

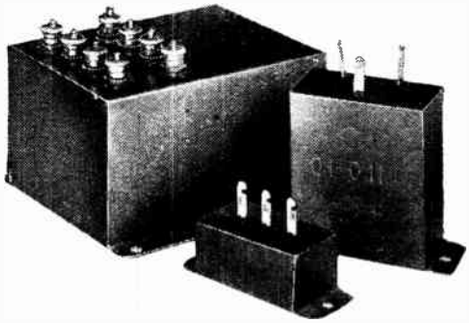
tion. Damping is provided by grease packing at the tip of the armature.

On test one of the first features to attract favourable comment was the exceptionally low mechanical noise from the pick-up head. The quality of reproduction is admirably suited to the reproduction of chamber music and solo voices, and there does not appear to be any lack of "top" when playing orchestral records. The output characteristic is smooth, and there is no trace of any armature resonance. Taking the output at 1,000 cycles as the datum, the curve is 11 db. up at 50 cycles, 5 db. up at 500 cycles, 5 db. down at 2,000 cycles, 10 db. at 3,500 cycles, and 20 db. down at 5,000 cycles, which is virtually the cut-off. The average output is of the order of 0.1 volt R.M.S.

Made by E.M.G. Hand-Made Gramophones, Ltd., 11, Grape Street, London, W.C.2, the price of the pick-up alone is £3 10s., or complete with carrier arm £4 10s.

T.C.C. BLOCK CONDENSERS

HITHERTO the sub-divided block condensers of the type used extensively by manufacturers have not been readily obtainable by the home constructor. The Telegraph Condenser Co., Ltd., Wales Farm Road, North Acton, London, W.3, have now decided to augment their already extensive range of condensers by some sub-divided types. Of particular interest is the 0.01 + 0.01 model suitable for use as a suppressor of modulation hum. It is tested at 1,000 volts D.C., and the price is 2s. 6d.



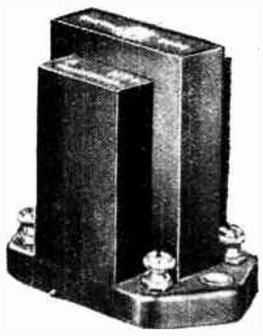
Selection of new T.C.C. sub-divided block condensers.

There are two 0.1+0.1 mfd. models, of which the type 125A is built up from four 0.2 mfd. condensers, two in series being employed in each half of the unit. This ensures a high factor of safety, and this model is rated at a working voltage of 500 A.C., and its price is 4s. 6d.

There is also an 8-mfd. block sub-divided into 4+2+2 mfd. condensers with a common negative terminal. The 4-mfd. section is tested at 750 volts D.C., while the two 2-mfd. units are tested at 500 volts D.C., and the price is 14s. 6d. Finally, we have a 12-mfd. block arranged as 4+4+2+2 condensers with a common negative, and the working voltage is 250 D.C. in each case; the price is 17s. 6d., and it is listed as the type R.M.12.

R.I. DI-FEED TRANSFORMER

THIS is one of the latest additions to the range of intervalve transformers made by Radio Instruments, Ltd., Purley Way, Croydon, and it has been introduced to meet the demand for an inexpensive component of small size suitable for direct connection in the anode circuit of a valve passing up to 4 mA. of anode current. The measured inductance of the primary was found to be 25 henrys when no D.C. is flowing, 15.5 henrys with 1 mA., 10.7 henrys with 2 mA., 8 henrys with 3 mA., and 6.5 henrys with 4 mA. of D.C. The step-up ratio is 1 to 3½.



R.I. Di-Feed intervalve transformer.

By employing a core of high permeability, described as "K" metal, a satisfactory inductance has been obtained with a comparatively small quantity of wire, consequently the self-capacity of the windings is low, and the amplification of the higher frequencies is maintained at a good level. Measurements show that at 8,000 cycles the amplification is but 2.5 decibels lower than at 1,000 cycles, but there is a slight falling off in the bass when the transformer is connected in the anode circuit of a valve passing some 2 mA. of D.C. At 100 cycles the amplification is lowered by approximately 7 decibels, but this will not have a very marked effect on the reproduction, as there will still be an ample bass response to preserve a reasonably good balance.

Considering the price of this component, namely, 7s., its performance is most satisfactory.

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CHANGE OF ADDRESS

In the review of the Eeles transformer on March 3rd the maker's address should be C. W. Eeles, 14, Gertrude Street, Limerston Street, Chelsea, London, S.W.10.

Gecophone Superheterodyne

"Overseas" Model

Three Wave Ranges, 13/30, 30/80, 200/560 Metres. C.W. or Telephony Reception

General:—*A.C. mains five-valve superheterodyne for short and medium waves. Interchangeable coils. Sockets for external loud speakers and gramophone pick-up. Teak cabinet and moisture-proof insulation throughout.*

Circuit:—*Anode bend S.G. first detector, oscillator, I.F. amplifier, S.G. leaky grid second detector, power pentode. Full-wave valve rectifier. Single-circuit aerial tuning on short waves, band-pass filter on medium waves.*

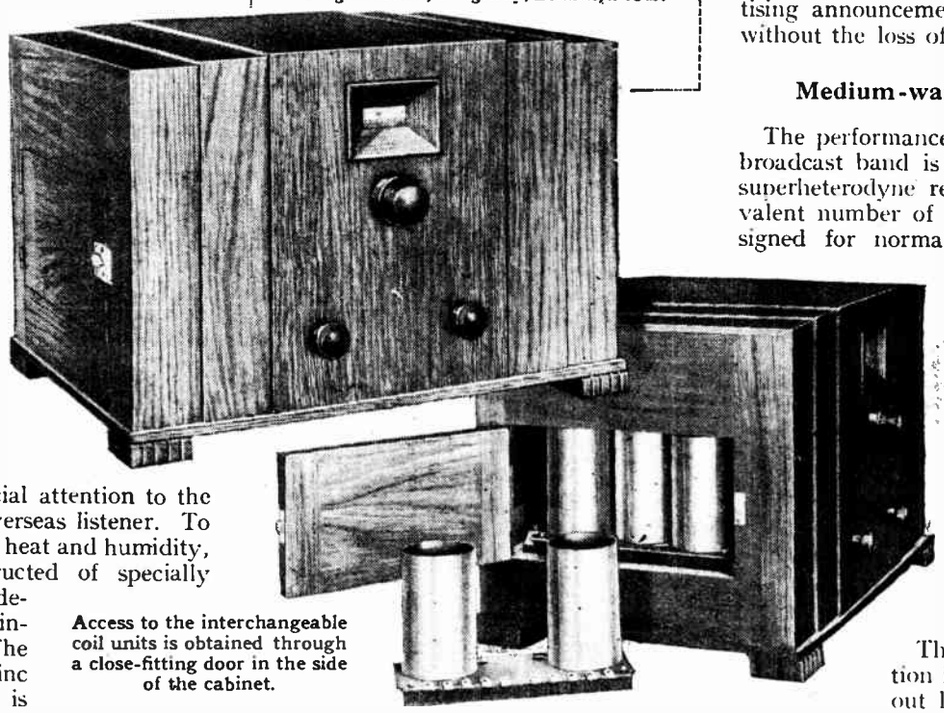
Controls:—*(1) Main tuning with illuminated dial, calibrated in degrees. (2) Volume control and on-off switch. (3) Compensating condenser (short waves only). (4) Switch for heterodyne reception of C.W. signals.*

Price:—*£25 4s. Chassis only, £23.*

Makers:—*The General Electric Co., Ltd., Magnet House, Kingsway, London, W.C.2.*

THE establishment of the Empire Broadcasting Station and the inauguration of regular programmes to the Colonies was an event of first importance to British subjects in all parts of the world. Situated in many cases thousands of miles away from the nearest broadcasting station, and with atmospherics making reception on the longer wavelengths impossible for months on end, the only means of broadcast reception in the tropics is through the medium of the ultra-short waveband.

Any commercially produced receiver specifically designed for short-wave reception is certain to find its way into countries the climate of which would very rapidly bring about the disintegration of the ordinary type of broadcast receiver as we know it in this country. Accordingly, the G.E.C., in producing their latest short-wave superheterodyne receiver, have paid special attention to the requirements of the overseas listener. To withstand the effects of heat and humidity, the cabinet is constructed of specially treated teak, and is designed to prevent the ingress of insects. The chassis is heavily zinc plated, and wide use is made of "keramott" moulded insulating material for coil formers, etc., as this is found by experience to stand up well to the rigours of a tropical climate.



Access to the interchangeable coil units is obtained through a close-fitting door in the side of the cabinet.

The circuit is perfectly straightforward, and consists of an anode-bend first detector, separate oscillator, one I.F. stage, leaky grid second detector, and power pentode output valve. In view of the need for compact wiring on short waves and the difficulty of ensuring reliability under tropical conditions of complicated switch mechanisms, interchangeable coil units are employed for each of the three wavebands. On the two short-wave ranges a single tuned circuit in the aerial provides adequate selectivity, but on the medium-wave band an inductively coupled band-pass filter is employed. A row of contacts running along the edge of the coil base effects the necessary change in the circuit in each case. Coils for the oscillator are, of course, included in each unit.

An unusual feature of the circuit, and one which is invaluable on the ultra-short waves, is the provision at the back of the set of a "C.W." switch, by means of which the I.F. stage may be made to oscillate. A fixed condenser of a few micromfds. couples the anodes of the I.F. and the second detector, and the switch earths a centre screening electrode when continuous wave signals are not required.

The main tuning control is provided with direct and slow-motion drives, and the dial has a finely graduated 100-degree scale with a hair-line indicator free from parallax.

On short waves the set handles just as easily as on the medium-wave broadcast band. The stability of tuning is remarkable, and it is possible actually to touch the aerial lead without appreciably altering signal strength. During the period of our tests the 13/30-metre band was not very productive, but there was plenty of activity on the 30/80-metre band. Space does not permit a catalogue of the number of stations received; readers will probably be more interested in the performance at long range from the point of view of programme value. At the first attempt three American stations, Schenectady (31.48 metres), Pittsburg (48.86 metres), and Bound Brook (49.18 metres), were received at good loud speaker strength. For a period of nearly two hours from 11 p.m. onwards the programmes from the two latter stations, which were principally occupied with talks and advertising announcements, could be followed without the loss of a single word.

Medium-wave Performance

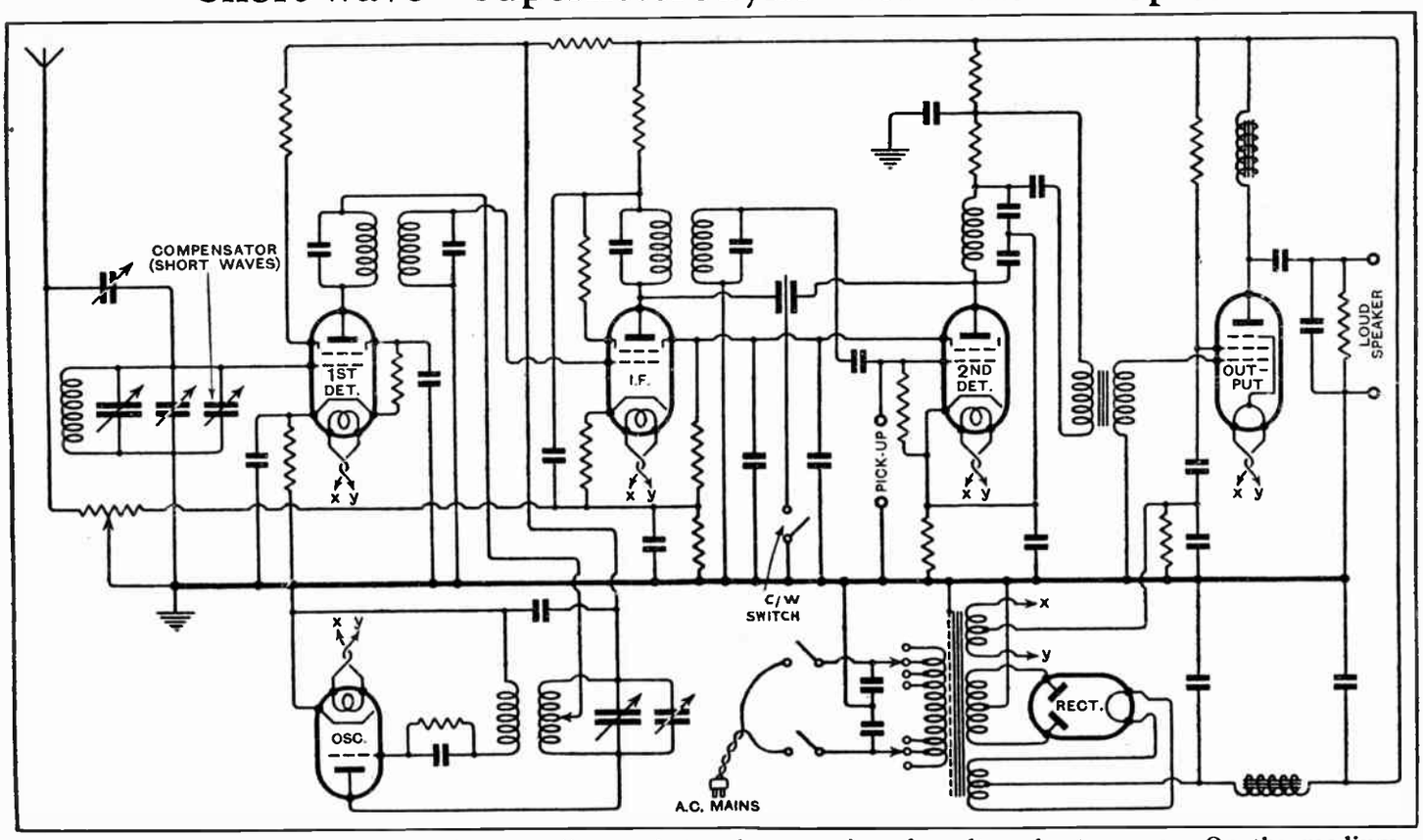
The performance on the 200/560-metre broadcast band is quite equal to that of superheterodyne receivers, with an equivalent number of valves, specifically designed for normal broadcast reception. Only one channel is lost on either side of the two Brookmans Park stations at a distance of five miles, and the range is limited only by the ratio of signal strength to the atmospheric background. Two second-channel interference whistles were prominent, but the remainder were of negligible volume.

The quality of reproduction is clear and crisp, without being deficient in bass, and in addition to its many other rôles the receiver might justly claim that of a quality reproducer for the local station. The power output is of the order of 2 watts, and a moving-coil loud speaker is definitely worth while.

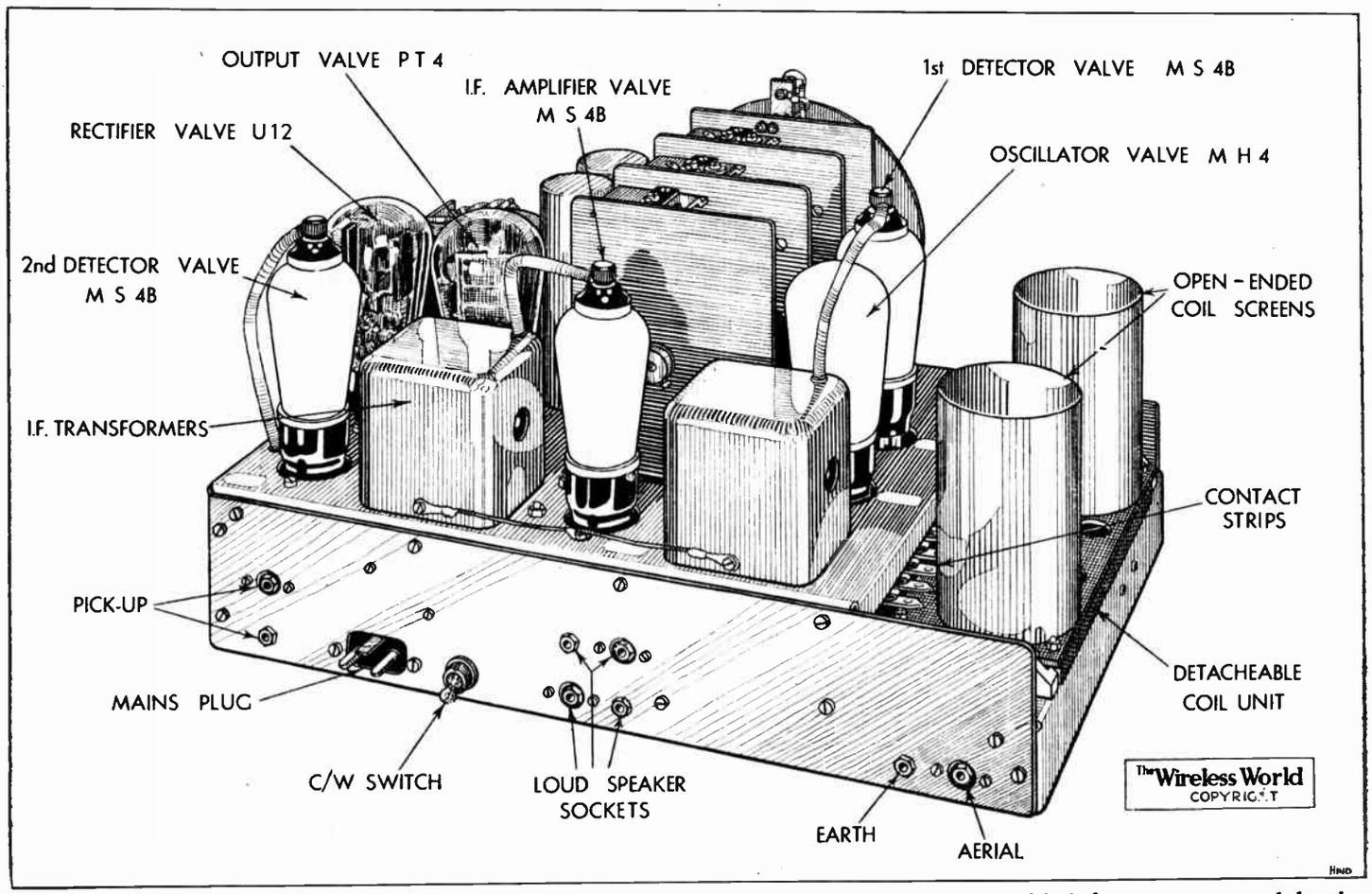
The hum level was fair, but could be noticed when the speaking voice was reduced to a natural volume level. Subsequently it was discovered that the mains transformer laminations were contributing the greater part of this noise—a small point for which the cure is obvious.

Finally, a word of praise concerning the service manual. In view of the fact that the set may have to be maintained miles from the nearest service agent, instructions complete down to the smallest detail are given, and there is no reason why anyone with an elementary knowledge of electricity should not be able to keep the set in commission.

Short-wave Superheterodyne for the Tropics



Circuit diagram of the G.E.C. "Overseas" superheterodyne receiver for ultra-short waves. On the medium waveband a two-circuit filter is employed in the aerial circuit.



The chassis is easily removed from the cabinet for inspection. Sockets are provided for two external loud speakers in parallel.

LETTERS to the EDITOR

The Editor does not hold himself responsible for the opinions of his correspondents

Correspondence should be addressed to the Editor, "The Wireless World," Dorset House, Tudor Street, E.C.4, and must be accompanied by the writer's name and address.

Broadcasting in the Highlands

I AM interested to read the comments of your special correspondent in your issue of February 24th, under the heading, "Broadcast Brevities," on the subject of the allocation of a new additional wavelength for the service of Highland listeners.

I agree that the Highlands "have been poorly served by the B.B.C. in the past." The position is worse than that. The Highlands have no proper service at all. Those of your readers who are interested should consult page 43 of this year's "B.B.C. Year Book," when the position will be seen at a glance.

The B.B.C. charter states that the Corporation is set up in the National interest. They have already admitted that their service falls short of their obligations, so far as the North of Scotland is concerned. Further, when Droitwich transmitter is completed, they have admitted, too, that the twin-transmitter scheme will have to be largely modified.

Your correspondent should not, therefore, write of the "waste of a good wavelength" north of the Caledonian Canal, when that calamity actually exists elsewhere.

No exception has been taken to the erection of the new B.B.C. Short-wave Empire transmitter for service to the thinly populated outposts of Empire. It is the thinly populated parts which need wireless most, and it is for the B.B.C. to honour the trust committed to their care by giving a service to the North of Scotland. I am sure no decent, fair-minded Englishman will deny this obvious duty to the Highlander, who pays his share towards the Empire transmitter. Charity begins at home. Highlanders do not ask for charity, but fair treatment only.

ANDREW MURRAY, Provost.
Town House, Dingwall.

What Does the Public Want?

IF "Diagnostic" lived in the Isle of Wight he would appreciate a selective set that can reach out to all the main European stations, as Daventry is the only British station that is reliable and worth listening to; the others on the broadcast band suffer from fading and distortion. Compared with foreign stations the British stations seem to be played through cotton-wool; band orchestras from the studios are badly balanced, and lack the crispness of foreign orchestras, especially from Germany; in fact, the only British programmes worth listening to are the outside broadcasts from places like the Queen's Hall and the Grand Hotel, Eastbourne.

I consider Broadcasting House a big mistake and not worth the money spent on it. As regards foreign stations, Radio Paris, Berlin (Konigswusterhausen), Fécamp, Leipzig, Breslau, Brussels, Rome, Huizen, Muhlacker, and Prague are all good stations, and can always be relied upon. I may say my views are typical of all my friends who use wireless. The main opinion is that the average of the B.B.C. is below these other stations, both as regards quality and variety of programme.

J. L. DYER.
Isle of Wight.

IT is obvious that "Diagnostic's" "personal observations" have been made over a very small area and most probably close to one of the newer B.B.C. transmitters.

The B.B.C. transmissions are of no use to me, and without the Continental programmes 10s. would be a dear rate to pay.

The best transmission from B.B.C. aerials here is Scottish Regional, but it transmits a programme, which is mostly American jazz, or discord called modern classics, with very little harmony or entertainment, and even these items are spoilt by effects or drums.

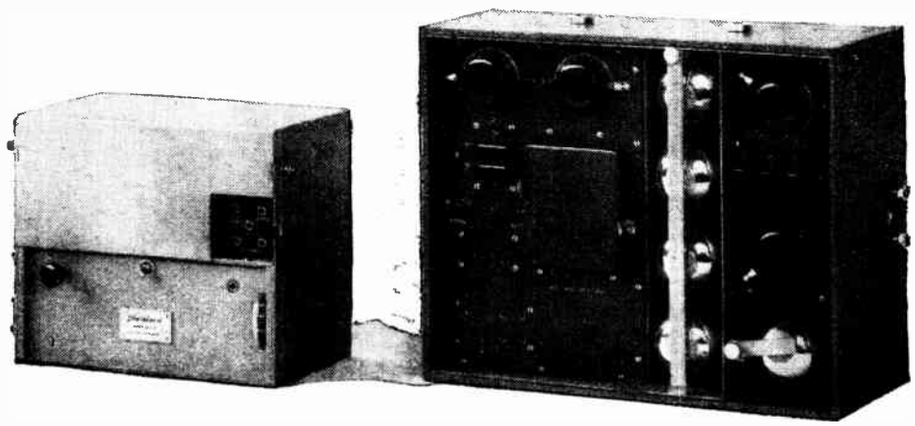
In this district, which is, I imagine, fairly representative of about half of the British Isles, the B.B.C. quality is quite definitely inferior to most Continental stations. At 60 miles S.W. of London's transmitters both programmes are horribly distorted by a peculiar fading of a nature not obtained on any other stations that I am able to receive.

During the ten years that I have used radio I have had many receivers, and now use the "W.W." Baby Super, and always find something to suit me from the Continent of very good quality and value.

Chichester. FREDK. A. FITCH.

MANUFACTURERS make the type of set that past experience has shown to be the most likely to sell! as so few local station sets are offered it is safe to assume that the demand is proportionately small. The demand for long-range receivers is real, and there is a good solid reason at the back of it. Men do not, as is suggested, spend the extra two pounds, or ten pounds, for a long-range receiver just for the satisfaction of being able to feel that they really could receive foreign stations if at any time they should ever happen to want to. I disagree, too, that the excuse for the long-range receiver is based on the two assumptions (1) that the B.B.C. programmes are inferior to foreign ones, and (2) that foreign programmes can be received with as good a quality as the locals. I doubt if any but the few simple souls who believe all the advertisements they read have ever assumed anything of the kind. The average man buys a long-range receiver, if he can afford it, because he knows quite well that, excellent as the B.B.C. fare is, it will not always be to his taste.

For, say, three-quarters of the listening time the B.B.C. provide excellent fare, and with as much choice among the national and various regional programmes as their resources will allow, but for one-quarter of the time they provide fare that is likely to leave the majority of their listeners dissatisfied. This is such a wise and far-sighted policy that it is hard to believe that it is accidental: it must be deliberate. Broadcasting of to-day is a miracle compared with



THE CONQUEST OF EVEREST. Portable transmitting and reception equipment supplied by Standard Telephones and Cables, Limited, to the Ruttledge 1933 Everest Expedition. The receiver (on left) and the transmitter (right) are for use at the base camp, and will communicate with Darjeeling.

that of ten years ago, and there is no slackening in its progress. This progress could not have occurred unless there was a public demand for it. Because the ordinary man has never been quite satisfied with the radio he has had and has all the time been willing to spend a little bit more in the hope of getting something better, he has been both subsidising the industry and putting a premium on enterprise and invention. The progress of broadcasting will continue for just so long as the ordinary man is not quite satisfied and is willing to spend a bit more in the hope of getting something better. The B.B.C. most certainly are keeping this spirit alive, and the proportion of satisfying and dissatisfying listening time is so nicely adjusted, particularly in respect to time and programme material, for keeping it alive, that I, personally, shall never believe it to be accidental. D. F. VINCENT.

Reading.

"DIAGNOSTIC'S" letter (in January 27th issue) appears to me as if he were trying to throw a monkey wrench into the machinery just to see the sparks fly. And I would condemn him for it to using a crystal set *only*—if at all.

Listeners, I believe (in this case) to be divided into two parts, the essentially foreign and local listener. Granted that the second may receive *better* reception (though it be not always appreciated), their numbers comprise those showing a lack of breadth of view, a lack of desire to hear anything else than the usual stereotyped local items—or those suffering from an unfortunate lack of funds.

The foreign programme listener, however, secures a broader view, a greater variety, and truly *alternative* programme (which are still denied us by the B.B.C.).

Personally, I have sought foreign programmes since the Eiffel Tower put them out on 2,500 metres. But these programmes now come to both one's front and back doors and I derive much pleasure from them, though overcrowding detracts. With superhet., band-passing, etc., this is partly overcome, and also the quality much improved, so comparing favourably with perhaps any except the local station.

The manufacturer, then, should build for both classes (local and foreign listeners), just as he does for mains and battery users.

Ealing, W.13. DEEXER.

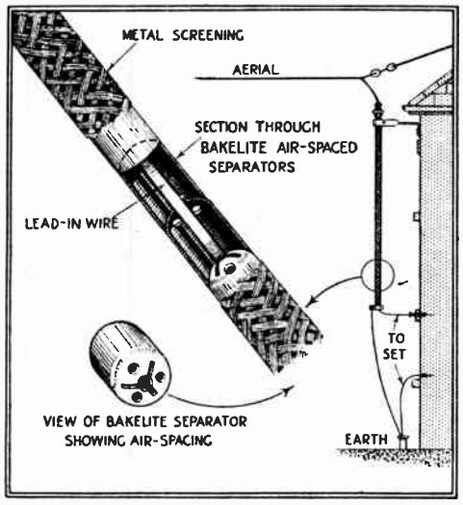
AS an owner of a super-het. and other sets, I feel justified in confirming much of what "Diagnostic" has to say. I insist that the value of entertainment derived from wireless is much overrated and that manufacturers and designers, together with the B.B.C., have duped us. There is a snag in evidence which they have yet to discover. I am one of the public. What do I want? Constant, reliable, undistorted reception, and if there is a set on the market to do this I have yet to hear it. The editor infers there is. I can prove there isn't, and that is the gist of "Diagnostic's" article. He considers the public should have more stability and well-nigh perfect sound, and I for one agree with him, considering the high price one has to pay, to say nothing of the fixed licence. The public have been sold pigs in pokes and have made the best of the swindle. "You may bluff some of us for some of the time, and some the whole time, but not all of us all the time." Some months ago we tried out a mains set which was reputed to bring in fourteen stations. It had the wonderful moving coil, etc., and the price was £12. We got the local and nothing more. This is an example of many. You are doing a real service to the listening community by opening your enterprising paper to such a grievance. Why it has not been brought forward before is a mystery to me. Referring to the National programmes, I consider them lacking the happy medium. They swing from vile, catwailing jazz to monotonous symphony concerts, week in, week out, the same syllabus. One wonders the directors do not get sick of it themselves. Where are the brass bands, the light variety items that are so popular? It is high time certain listening martyrs had a seat on the B.B.C. As truth and quality go in a small compass, I trust they will be the final factors in this discussion, and not the remarks of the majority, as so often happens. Here's to better quality, better reception, and better programmes.

"SEARCHLIGHT."

Boscombe, Hants.

GOLTONE SCREENED DOWN-LEAD

IT has been conclusively proved that a great deal of electrical interference reaches our receivers by re-radiation from the household wiring system. Recent work by independent authorities has led to the conclusion that the field of interference pro-



Construction and installation of the Goltone screened down-lead.

duced in this way does not extend far from the building, but that the aerial downlead is particularly likely to be affected.

Up to the present time it has been impossible to apply the obvious remedy of shielding the down-lead, for the reason that ordinary screened wire has an excessive self-capacity. With commendable enterprise, the firm of Ward and Goldstone, Ltd., of Pendleton, Manchester, has now produced a special form of low-capacity cable for this purpose. A series of bakelite thimbles, articulated on the "crocodile spine" principle, are used to centre a rubber-insulated conductor in a metal-braid cover.

A practical test, made under conditions where interference is normally heavy, proved highly successful. Signal strength was reduced to a slight extent, but, with a receiver having a margin of sensitivity, this is not serious. What really matters it that the signal-to-noise ratio was improved to a more-than-acceptable extent; indeed, certain forms of interference disappeared entirely.

Low-capacity screened cable of this sort cannot be cheap; a 30-foot length costs 36/-, but in many circumstances it is well worth its cost.

CLUB NEWS

Golders Green and Hendon Wireless Society

MR. ALEXANDER BLACK'S recent talk on "Tone Correction," before the Golders Green and Hendon Radio Scientific Society, aroused great interest. Various methods were described and illustrated by means of frequency records, visual indication being obtained by means of the valve voltmeter and aural effects with dual moving-coil loud speakers.

Mr. F. E. Henderson, A.M.I.E.E., of the G.E.C., recently lectured on the "Vari-mu Valve," describing the great advantages of the valve in pre-detection volume control.

Mr. J. C. Emerson, B.Sc., dealt in a recent paper with direct-coupled amplifiers.

All communications should be addressed to the President: Lieut.-Col. H. Ashley-Scarlett, D.S.O., 60, Pattison Road, London, N.W.2.

All About the Cathode Ray

"THE Cathode Ray Oscillograph" formed the nucleus for an entertaining evening at a recent meeting of the North Middlesex Radio Society. The lecturer was Mr. G. Parr, representing the Edison Swan Electric Co., Ltd., and he had brought with him interesting apparatus and many lantern slides. Numerous experiments were carried out, and the audience were shown how the cathode ray was projected and how it could be controlled by magnetic or electric fields.

Hon. Secretary: Mr. E. H. Laister, Windflowers, Church Hill, London, N.21.

Choosing a Subject

ANOTHER new idea was exploited by Slade Radio at a recent meeting when, in the absence of the appointed lecturer, Mr. Peck offered to fill the vacancy and allowed members to choose the subject of discussion. Five subjects were proposed, and two were ultimately agreed upon by vote, namely, "Screen-grid Valves as Detectors" and "Quiescent Push-pull." On the first topic details were given of coupling, rectification, quality, amplification and reaction. The second subject aroused great interest. Details were given of the quiescent push-pull circuit, and the use of transformers and eliminators was discussed.

Hon. Secretary: 110, Hillaries Road, Gravelly Hill, Birmingham.

Manufacturing Superhets

MEMBERS and Associate Members of the Crewe and District Radio and Scientific Society spent a very interesting evening on Tuesday, February 14th, when Mr. Hornby, of the Philco Radio and Television Corporation, lectured on the "Manufacture of the Philco Superheterodyne." Mr. Hornby clearly explained the action of the automatic volume control applied to Philcos main sets, also the new "Push-pull" output stage incorporated in the battery model.

Anyone interested is invited to communicate with the Hon. Secretary: Mr. R. Peach, 84, West Street, Crewe.

L.F. Circuit Phenomena

AT a recent meeting of the Smethwick Wireless Society Mr. Valentine, of the Mullard Wireless Service Co., Ltd., lectured on various L.F. circuits. By using a dual-gramophone amplifier the lecturer demonstrated the different effects produced by various couplings between valves and between output valve and speaker.

Hon. Secretary: Mr. E. Fisher, 33, Freeth Street, Oldbury, near Birmingham.

A Debatable Point

"PENTODES *versus* Triodes" was the intriguing title of the lecture given by Mr. G. Parr, of the Edison Swan Electric Co., Ltd., at a recent meeting of the Catford and District Radio and Television Society. The keenness with which the lecture was followed could be judged by the vigour of the discussion, in which the speaker was never at a loss to answer the various questions put to him.

Hon. Secretary: Mr. H. W. Floyd, 38, Como Road, Forest Hill, London, S.E.23.

READERS' PROBLEMS

THESE columns are reserved for the publication of matter of general interest arising out of problems submitted by our readers. Readers requiring an individual reply to their technical questions by post are referred to "The Wireless World" Information Bureau, of which brief particulars, with the fee charged, are to be found at the foot of this page.

Anode Current

AT first sight it would seem perfectly simple to measure the anode current of a screen-grid valve; all that one has to do is to remove the existing connection to the anode terminal (which is nearly always accessible) and to interpose the milliammeter between this terminal and the connection which normally joins it to the H.F. coupling device.

But in practice the interposition of the meter and its wiring will generally provoke uncontrollable H.F. oscillation, due to stray coupling to other circuits. This is the experience of a reader who has an A.C. set in which the internal connections are inaccessible, and we are asked to suggest a simple way of checking self-oscillation while measurement is being made. It is hoped to avoid the need for removing the receiver chassis from its cabinet.

Self-oscillation will be prevented if either the grid or anode coils of the valve to be dealt with are short-circuited. Of course, it may happen that these coils are also inaccessible, and in this case it will probably be equally effective to short-circuit the grid of the valve to the earth line (or metal chassis). In cases where the valve is biased in the usual way by the voltage drop across a resistor in its cathode circuit, this plan is quite permissible. If the current measurement is to be accurate, bias voltage must not be changed.

Triodes in Q.P.P.

A HIGHLY economical system of Q.P.P. amplification, in which three-electrode valves are used, was described in *The Wireless World* for February 24th. An output stage planned on these lines is applicable to almost any battery-operated receiver; provided that the output valves do not require a greater negative bias than about 15 volts, the use of an intermediate stage may be avoided, and the detector may be arranged to feed the push-pull output valves directly, using a high-ratio transformer.

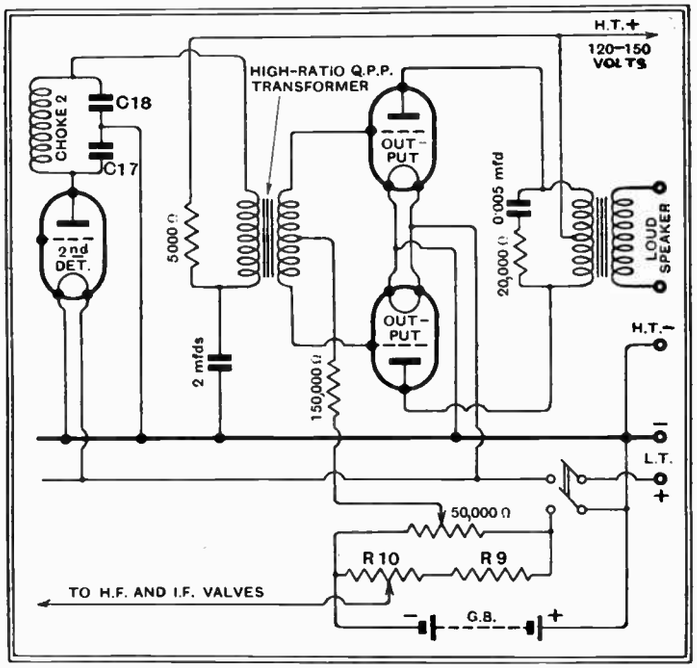


Fig. 1.—The output stage of the "All-Wave Monodial," as modified for the Q.P.P. system with three-electrode valves.

This brief statement will serve to answer the main questions of a reader who is about to build the "All-Wave Monodial Superhet," and who wishes to substitute Q.P.P. amplification with triodes. He intends to use Osram L.P.2 valves, and to operate them with an anode voltage of about 150.

For his guidance we give in Fig. 1 a circuit diagram showing the modifications necessary for the "All-Wave Monodial"; in this diagram those components which will still be used have been given their original reference lettering.

With regard to grid bias adjustments for the push-pull output valves, it will be noticed that an extra 50,000-ohm potentiometer is shown. At a pinch this component could be dispensed with, but for reasons that have already been explained, it is a highly desirable adjunct.

Electrolytic Condensers

A SUGGESTION to the effect that an electrolytic condenser becomes ineffective at high audio frequencies because its internal resistance then predominates, seems to be based on a fallacy. It is not the *capacity*, in itself, that is important, but the *impedance*, which should not be allowed to exceed about 100 ohms at any frequency. A combination of capacity and resistance in series, forming an impedance which is low enough at the lowest frequency, cannot be greater at any higher frequency, and is therefore bound to be satisfactory.

To take figures relating to an actual condenser, the impedance measured at 50 cycles was 90 ohms, corresponding to an apparent capacity of 35 mfds., and at 800 cycles, 22 ohms, or an apparent capacity of 9 mfds. The actual capacity was 36 mfds., and the resistance 21 ohms. So, although at the higher frequency the condenser behaves mainly as a resistance, it is at the same time actually a better by-pass than at 50 cycles, when it acts as a nearly true condenser.

Bias from D.C. Mains

WE are all familiar with A.C. mains sets and D.C. mains sets; even those which work interchangeably on either system are not altogether unknown. Now we are confronted with a proposal to operate a receiver simultaneously from both A.C. and D.C. sources of supply.

The position is this: A querist who operates his A.C. receiver from 200-volt D.C. mains through a rotary converter proposes to replace his existing output valve by one having a considerably greater power output, and requiring more anode voltage than that at present in use. The existing power equipment is just capable of satisfying the demands of the new valve, so far as anode supply is concerned, but there will be no surplus for "free" grid bias; about 30 volts is required for this purpose.

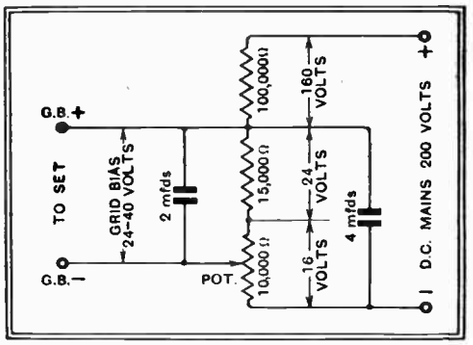


Fig. 2.—Grid bias voltage from D.C. mains: an arrangement applicable only in special circumstances. The voltage distribution across the potentiometer elements is marked.

We are asked to say whether in these circumstances the necessary bias voltage can be obtained from the D.C. mains without prejudice to the operation of the set. It is desired to have some control of the actual grid voltage applied to the output valve.

Although this arrangement is unconventional, we can see no serious objection to it, and suggest the arrangement shown in Fig. 2. This consists of a semi-variable potential divider, allowing variations of grid bias voltage between 24 and 40 volts. Smoothing is effected by one element of the potentiometer in conjunction with a 4-mfd. condenser.

It should be pointed out that the set should not be directly earthed; unless a double-wound aerial-grid transformer is employed, a condenser must be inserted in the earth lead.

The Wireless World INFORMATION BUREAU

THE service is intended primarily for readers meeting with difficulties in the construction, adjustment, operation, or maintenance of wireless receivers described in *The Wireless World*, or those of commercial design which from time to time are reviewed in the pages of *The Wireless World*. Every endeavour will be made to deal with queries on all wireless matters, provided that they are of such a nature that they can be dealt with satisfactorily in a letter.

Communications should be addressed to *The Wireless World* Information Bureau, Dorset House, Tudor Street, E.C.4, and must be accompanied by a remittance of 5s. to cover the cost of the service. The enquirer's name and address should be written in block letters at the top of all communications.

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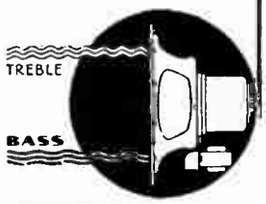

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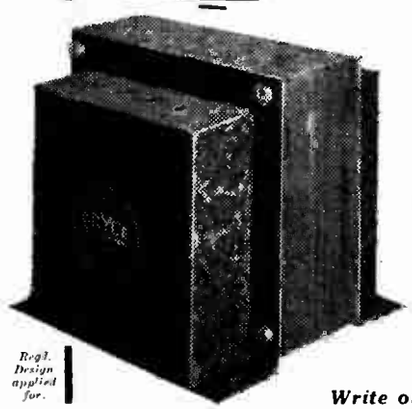

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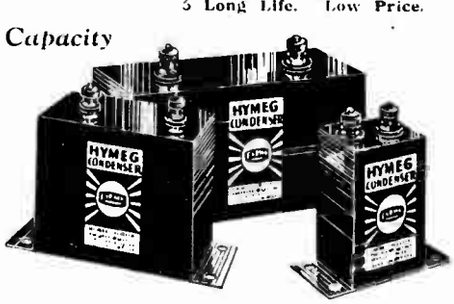

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(See Classified Advts. in "For Sale" col. 2, page 18).

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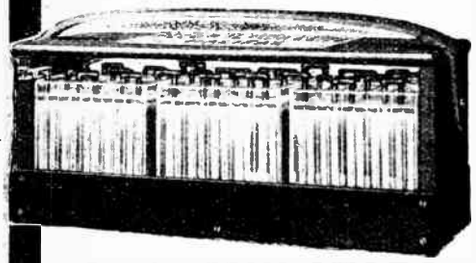

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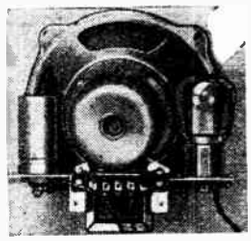

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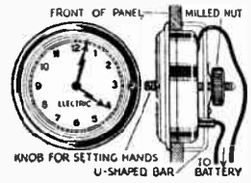

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A FEW Colverdyne Intermediate Frequency Transformers, 110 kcs.; to clear, 6/3.

ABOVE Supplied, cash with order, on 7 days' approval.—J. Dorsdill, 24, Legrams Av., Bradford. [2130

EXPERIMENTER'S Surplus, everything guaranteed perfect.—M.L. converter, new, 12 volts input, 500 volts 60 m.a. output, £5/10; Weston thermo-ammeters, 1.5 amp., type 5117, £1; dual Magnavox, push-pull transformer, £2; Novotone, 30/-; B.T.H. pick-up, 15/-; Burndept N.A. pick-up, 15/-; Mazda P650, 7/6; set of Tunewell "Diode Four" coils, 15/-; Wearite L.F. transformers, 7/6; Colvern K63, K.G.R., 6/-; T.G.S.C., 3/6; Utility drum dial, 4/6.—Box 6328, c/o *The Wireless World*. [2129

RADIO BY MAIL

A.C. MONODIAL SUPER

KIT "A"

Author's Kit of FIRST SPECIFIED Components for Set only including Ready Drilled Polished Oak Panel, **Ready Assembled and Drilled PLYMAX Set Chassis**, screws, wire and sleeving but excluding Eliminator Components, Valves and Cabinet.

Cash or C.O.D. Carriage Paid. **£11-10-6**

or Deposit £1-10-6 and 11 monthly payments of £1-0-0.

ELIMINATOR KIT

Includes all FIRST SPECIFIED Components for 2.5 Watt Power Chassis with ready drilled and assembled **Plymax** Chassis with screws, wire and sleeving but, less Valves. Cash or C.O.D. Carriage Paid. ***£8-5-6, or 12 monthly payments of 15/2.***

COMPLETE KIT

Includes all FIRST SPECIFIED Components for Set and Eliminator with Valves. Cash or C.O.D. Carriage Paid. ***£26-18-0, or Deposit £4-18-0 and 11 monthly payments of £2-4-0.***

KIT-BITS

Selected C.O.D. items for the A.C. Monodial. You pay the postman. We pay post charges on orders over 10/-.

	£	s.	d.
1 **PETO-SCOTT "PLYMAX" Chassis,** 12" × 14", completely assembled and ready drilled for Set		10	0
1 **PETO-SCOTT** Oak Faced Ply Panel, 14" × 9½"		2	6
1 **British Radiophone** Variable Condenser, .0005 mfd., 3 gang, Screened with Slow Motion Dial	1	15	0
3 **Colverdynes** (110 K.C.)	1	17	6
1 Set of **Varley B.P.** Square Peak Coils, Type B.P.19	1	10	0
19 **Dubilier** Fixed Condensers. As specified for Set portion	2	4	8
18 **Dubilier** Resistances. As specified for Set portion	1	1	0
1 **Sound Sales** L.F. Choke (10 Henrys)		10	0
1 **R.I.** Hypercore L.F. Choke (30/20 Henrys) ...		17	6
1 **Bulgin** L.F. Choke, Type L.F.14		10	6
1 **Challis** Mains Transformer	1	19	0
1 **Ferranti** A.F.5 L.F. Transformer	1	10	0
1 **PETO-SCOTT "PLYMAX" Chassis** ready drilled and assembled, for Power Pack, 9" × 12" ...		7	0
Set of 9 Specified Valves, including Rectifier ...	7	5	0

PILOT AUTHOR KITS—

FERROCART III

KIT "A" **Author's Kit of FIRST specified Parts complete down to the last screw, including READY DRILLED Peto-Scott Panel with assembled and drilled Peto-Scott PLYMAX CHASSIS but less Valves and Cabinet.**

CASH or C.O.D. Carriage Paid.

12 GNS.

or **12** monthly payments of **23/-**

Set of 4 Specified Cossor Valves £3.7.6

or add 6/2 to each Kit "A" monthly payment.

DELIVERY PER RETURN

COLVERN FERROCART COILS

AS SPECIFIED

BY special arrangement with Messrs. Colvern Ltd., we hold stocks of their FERROCART COILS for immediate delivery.

Set of 3 Coils, ganged and mounted on metal chassis, as specified:

CASH or C.O.D. Carriage Paid **£2-10-0**

or 12 monthly payments of 4/7.

Readers desiring to purchase any items separately can order with confidence from the EDITORIAL LIST OF PARTS for delivery against CASH or C.O.D. Orders over 10/- Carriage Paid, or C.O.D. Post charges Paid. Components or Part Kits value over 50/- by EASIWAY if preferred.

Exact to Specification

PETO-SCOTT CO. LTD.

77, CITY ROAD, LONDON, E.C.1.

Telephone: Clerkenwell 9406/7.

West End Showrooms: 62, High Holborn, London, W.C.1.

Components, etc., for Sale.—Contd.

R.

SELECTED Parts for Sale, as new; any c.o.d., or "Wireless World" deposit system, which we recommend if in doubt as to the splendid value offered; we take all risk of damage in transit to our customers; all goods tested for callers and guaranteed, however low price. Notice.—Payment by cheque; no goods despatched until these are cleared.

WE refund cost of telegrams received on Friday only on orders of 7/- or over.

T.C.C., type 84, 1 mfd., 375v. working, 1/3; T.C.C., 2 mfd., 375v. working, 1/6.

METERS, moving iron and moving coil, all new instruments, specially made for Ryall's Radio, all guaranteed for one year, moving coil meters to B.E.S. first grade specification, all panel flash type bakelite case.

MOVING Coil: 0-10 m.a., 0-50 m.a., 0-25 m.a., 0-5 m.a., 21/-; 0-250v 1,000 ohm per volt, 31/-; 0-300v. ditto, 32/6; all with zero adjustment, size 3¼in. diameter, 2½in. dial face.

MOVING Iron Meters, first grade air damped, with zero adjustment, A.C. meters, 0-250v., 18/-; A.C. and D.C., 0-50 m.a., 15/-, size as above.

MOVING Iron Meters, in cases, as above, A.C. meters, 0-6v., 10/-; 0-3 amp., 10/-; 0-12v., 10/-; 0-250v., 12/-; 0-6 amp., 10/-; A.C. and D.C., 0-20 m.a., 10/-; 0-50 m.a., 10/-; (0-10 m.a., 8/6, D.C.)

RYALL'S RADIO Own Mains Condensers, offered with confidence, all with terminals, 4 mf. 250v. working, 400v. peak, 3/6; 4 mf. 400v. working, 600v. peak, 4/-; 4 mf. 750v. working, 1,000v. peak, 5/6; 2 mf. 750v. working, 3/6; new goods, guaranteed one year.

RYALL'S RADIO Mains Transformers, new goods, 250v. 60 m.a., 4v. 1 amp., 4v. 3 amp., 10/6; ditto, super type, with 4v. 5 amp., 15/6; 350v. 60 m.a., 4v. 2 amp., 4v. 4 amp., 12/9; step up or down transformers, 110v. to 220v., 10/6; 60 watt H.T.7, 10/9; filament, 4v. 5 amp., 8/6.

RYALL'S RADIO Chokes, 20H 120 m.a. resistance, 260 ohm 8/9; 25H at 60 m.a., res. 260 ohm, 6/9; 40H 100 m.a., resistance 600 ohm, 10/6, constant inductance chokes.

IGRANIC Mains Transformers, 110/250v. input, 250v. 75 m.a., 4v. 1 amp., 12/-; 460v 120 m.a., 7.5, 8v., 15v., to clear at 15/-; ditto H/W, 550v., 60 m.a., 7.5v., 6/-.

MAGNAVOX D.C. 144, with transformer, 2,500 ohms, 15/6; Rola D.C. 2,000 ohms, with pentode transformer, 17/6; 6,500 ohms, ditto; post free.

SET Cabinets for 3v. A.C. Sets, room for speaker, suit "W.W." A.C.3, etc., brand new, fitted escutcheon, 20/-; used, 16/-.

SPECIAL Offer of Pye 20h. Chokes, 40 m.a., 130 m.a. maximum, D.C. resistance 300 ohms, in brown crystaline finish, new, unused. Pye 32h. chokes, D.C. resistance, 700 ohms, 30 m.a., 80 m.a. maximum, ditto, 6/3 each, post free.

RYALL'S Own Wire Wound Resistances, wound on vitreous tubes, wire ends, wattage ratings doubled when well ventilated, accuracy plus or minus 2 per cent. in values: 250 1-watt, 300 1-watt, 330 1-watt, 500 1-watt, 510 3-watt, 540 3-watt, 715 1-watt, 750 2-watt, 800 1-watt, 1,200 1-watt, 4,000 2-watt, 5,000 5-watt; prices, 1 watt 1/-, 2-watt 1/3, 3-watt 1/6, 5/-watt 1/9; guaranteed one year.

SUITCASE Cabinets in Best Crocodile Leather, 14×14×8, ample room for 12in. turntable and pick-up; 15/-, new.

EDISON BELL 10,000, Eureka wire wound, with holders, 1/-; Edison Bell 0.0005 universal log all metal condensers, 1/6, new.

RYALL'S RADIO, 33, Chancery Lane, London, W.C.2 (nearest Tube Chancery Lane; 'bus 67 passes door, or tram to Savoy St.). Holborn 3529. Open Saturday afternoon. Close 7 p.m., Thursdays 1 o'clock, Saturday 6 p.m.

R. [2164

GUARANTEED Components:—

BRANJU New American Valves, 224, 235, screened grid, 10/- each; 226, 227, 280, 8/-; and other types pro rata.

UTILITY 0.0005 Condensers, new, double ball bearing spindles; 3/6.

SUITCASE Cabinets, 14×14×8, guaranteed real hide, crocodile pattern; 12/6.

TABLE Radiogram Cabinets, in blue texture; 5/- each.

MICA Di-electric 0.0005 Condensers, at 9d. each.

D.C. Eliminators, all types and makes, output 10 to 50 m.a.; from 5/- each.

POWER Chokes, 30 henries, 40 m.a.; 3/6 each.

CONDENSERS.—750v. D.C. test, 1 mfd., 1/-; 2 mfd., 1/8.

LARGE Stock of Various Components, sets, cabinets, etc., etc., in stock.

MAINS Transformers, manufacturers' type, 250-0-250, 60 m.a., 4v. 2a., 4v. 1a., C.T., 8/6; 300-0-300 60-80 m.a., 4v. 3a., 4v. 2a., C.T., 9/-.

240V. Transformers, for use with H.T.8 rectifier, 11/-; and various other types of all the above.

3-VALVE Strips, complete with ready wired filaments, with 2 fixed condensers, 0.002 and 0.0003, 1/6 each.

2-GANG Condensers (H.M.V.) with trimmers, complete; 5/6.

ROTHERMEL M.C. Speaker, heavy type, 6-12v. field; 12/6; carriage extra.

UNIVERSAL RADIO, 220-221, City Rd., E.C. [2161

MAINS RADIO'S Usual Guaranteed Set Manufacturers' Surplus, as new. Carriage paid or call.

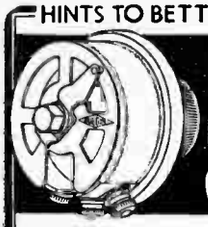
SPECIAL! Parallel feed transformers, 2/2 each; N. & K. Farrand inductor speakers, 32/6.

FORMO Blocks, 1,000v. test, 8×2×2×2×1×1 mfd., 6/6; double wound smoothing chokes, 10h. 30 m.a. each half, 2/6.

VALVES.—M.S.4, 8/3; M.H.4, 6/3.—Mains Radio Development Co., 4-6, Muswell Hill Rd., London, N.6. [2152

THE "Atomized" Chemical Aerial, amazing results, knife-edge selectivity, enormous power and range, fix in or out of doors; 7/6, postage 1/-.—Chemerator Unit Co., 88, Wellington St., Luton, Beds. [2138

HINTS TO BETTER RECEPTION.II.



PERFECT BALANCE OF TONE

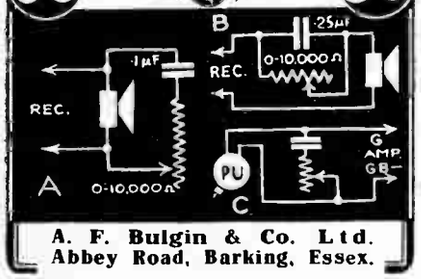
BULGIN VOLUME CONTROLS

TO remove excessive treble, such as is commonly necessary when a pentode is used, employ circuit A.
To eliminate some of the bass and raise the pitch, use circuit B. The above must be used in conjunction with a filter output circuit. Fig. C shows a pick-up arranged to avoid excess of top register.

ALL VALUES SUPPLIED FROM 500 TO 100,000 OHMS.

Send for 80 pp. Catalogue "W" and full details. Enclose 2d. Postage.

'COMPACT' PRICE FROM 3/6 — BULGIN — 'STANDARD' PRICE FROM 5/6



A. F. Bulgin & Co. Ltd. Abbey Road, Barking, Essex.

★ ERIE RESISTORS

Recommended and NEEDED for

The "A.C. MONODIAL SUPER"

You definitely need Erie Resistors. They are essential for absolute safety because they are positively GUARANTEED not to break down. That's why everyone uses them and recommends them. Erie Resistors are safe, stable, silent and reliable. Use them with confidence.

1/- PER WATT in all values.

SPECIAL OFFERS

Resistor kit for A.C. Monodial Super A.V.C. Chassis, 17 Hand Tested Resistors as specified **20/-**
*Conversion kit of 12 Hand Tested Resistors as specified for converting A.C. Monodial to A.V.C.—***15/-**. *Obtainable from all traders or direct.*

THE RADIO RESISTOR CO.
1, Golden Sq., Piccadilly, London, W.1.

Components, etc., for Sale.—Contd.

PREMIER SUPPLY STORES Offer the Following Brand New Goods at a Fraction of the Original Cost; all goods guaranteed perfect; carriage paid over 5s., under 5s. postage 6d. extra (Ireland carriage forward), c.o.d. charges extra.

SPECIAL Offer of Mains Transformers, manufacturers' type, any input, output 250-0-250 volts 60 milliamps, 4 volts 1 amp. (c.t.), 4 volts 3 amps. (c.t.), 8/6; 180-0-180 volts 40 milliamps, 4 volts 1 amp., 4 volts 2 amps., 4/6; 175 volts 50 milliamps, 4 volts 4 amps., 4 volts 1 amp., 5/6; H.T.8, with 4 volts 3-4 amps., 8/6; with rectifier, 18/6.

MULTIRATIO Output Transformers, 6 taps giving 15 different ratios, 7/6; Pye chokes, 20 or 32 henries, 4/-.

PREMIER Chokes, 40 milliamps 25 henrys, 4/-; 65 milliamps 30 henrys, 6/-; 150 milliamps 30 henrys, 10/6.

SMOOTHING Chokes for Series Connected Filaments from D.C. Mains, carry 1 amp., 7/6; H.M.V. 110 henry chokes (100,000 ohms resistance, carry 10 m.a.), 3/6.

AMPLION High Inductance Chokes, resistance 2,500 ohms, 80 henrys, 60 m.a.; 5/6.

PREMIER Eliminators, input 200-250 volts, 40-100 cycles A.C., incorporating Westinghouse metal rectifiers, output 250 volts at 60 milliamps, 80 and 120 volt taps, 42/6; with 4 volts 4 amps. L.T. (c.t.), 7/6 extra.

PREMIER Eliminators, output 150 volts at 30 milliamps, 80 and 100 volt taps, with 4 volts 3-4 amps. (c.t.), L.T., 37/6; with trickle charger, 42/6.

PREMIER Eliminators, output 120 volts at 20 milliamps, 80 and 100 volt taps, 27/6; with L.T. trickle charger incorporated, 35/-.

D.C. Eliminators, output 120 volts at 20 milliamps, 80 and 100 volt taps, 15/-; larger model, output 200 volts 50 milliamps, 80 and 120 volt taps, 25/-.

ACCUMULATOR Chargers, 200-250 volts A.C., all incorporating Westinghouse rectifiers, 2, 4 and 6 volts at ½ amp., 17/6; 2, 4 and 6 volts at 1 amp., 22/6; up to 12 volts at 1 amp., 27/6; up to 6 volts at 2 amps., 35/-; up to 6 volts 3 amps., 47/6; charger with 3 12-volt 1-amp. circuits, 75/-.

S. G. BROWN Power Units, consisting of tapped mains transformer, Westinghouse rectifier, and T.C.C. electrolytic condenser, output 6 volts 1 amp., for charging and energising; 21/- (listed £3/15).

PREMIER Mains Transformers, all guaranteed, terminal connections, input 200-250 volts, 40-100 cycles, output 135 volts 80 milliamps, for voltage doubling, 8/6; 4 volts 4 amps., centre tapped, L.T., 2/- extra; Westinghouse rectifier for above, giving 180 volts at 30 milliamps, 8/6.

PREMIER Mains Transformers, output 250-0-250 volts at 60 milliamps, 4 volts 1 amp., 4 volts 2 amps., and 4 volts 3-4 amps. (all c.t.), with screened primary, 15/-.

H.T.8 Transformers, with 4 volts 3-5 amps. L.T. (c.t.), with screened primary, 15/-; with Westinghouse rectifier, 25/-.

H.T.9 Transformers, output 230 volts 200 milliamps, with 4 volts 4 amps. (c.t.), with screened primary, 15/-; with Westinghouse rectifier, 26/-.

H.T.10 Transformers, with 4 volts 4 amps L.T., 15/-; with rectifier, 27/- (smoother output 200 volts at 100 milliamps).

PREMIER Mains Transformers,—12 volts 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps. and 4 volts 2 amps., 8/6; 14 volts 4 amps., 12/6; 4 volts 3 amps., 7/6; 4 volts 5 amps., 8/6; 22 volts 1 amp., 10/-; 6 volts 2 amps., 7/6.

MAINS Transformers, output 350-0-350 volts 90 milliamps, 4 volts 3 amps. (c.t.), 4 volts 2 amps. (c.t.), 12/6.

AMPLION Mains Transformers, input 100-250 volts, output 350-0-350 volts 120 milliamps, 4 volts 5 amps., 4 volts 2 amps., and 6 volts 1 amp. (all c.t.); 17/6.

T.C.C. Condensers, 250 volts working, 4×4×1 mfd., 5/-; 300 volts working, 4×4×2×2×2 mfd., 7/-; 375 volts working, 6×4×2×2×2 mfd., 10/-; 300 volts working, 4×4×2×1 mfd., 6/-.

400 Volts Working, 3 separate 4 mfd. condensers, 8/6; with 2 separate 1 mfd. condensers, 2/- extra.

WESTERN ELECTRIC, 400 volts working, 0.01×0.01 mfd., 1/-; blocks 4×2+2×2×1=0.09 mfd., 400 volts working, 6/-.

FERRANTI Condenser Blocks, 300 volts working, 4×4×2+2 mfd., all entirely separate; 10/-.

T.C.C. Condensers, 750 volts working, 2 mfd., 4/-; 750 volts working 4 mfd., 6/-; 4 mfd. 400 volts D.C. working (300 volts A.C. working), 4/-; 4 mfd. electrolytic condensers, 440 volts working, 3/-; 8 mfd., 3/3.

WESTERN ELECTRIC Condensers, 250 volts working, 1 mfd. 6d., 2 mfd. 1/-; 400 volts working, 1 mfd. 1/-, 2 mfd. 2/-.

POLAR 3-gang Variable Condensers, tub type, fully screened, split end vanes and disc drive, 0.0005; 10/-.

ORMOND All-brass 2-gang Condensers, semi shielded, 0.0005, 5/-; Ormond all-brass 0.0005 slow motion condensers, with knob and dial, 3/6; Polar 0.0005 and 0.00035 Bakelite dielectric condensers, with knob, 1/-.

BRITISH RADIOPHONE 4-gang Condensers, with trimmers, 12/6; fully screened, 16/-.

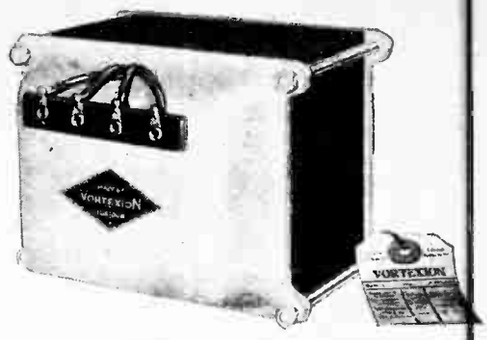
SPECIAL Offer of Wire Wound Resistances, 4 watts, any value up to 10,000 ohms, 1/-; 8 watts, any value up to 15,000 ohms, 1/6; 15 watts, any value up to 50,000 ohms, 2/6; 25 watts, any value up to 50,000 ohms, 3/6; 50 watts, any value up to 50,000 ohms, 5/-.

WIRE Wound Potentiometers, 15,000 ohms, 1/6; Centralab potentiometer volume controls, 50,000 ohms, 2/-; Colvern-tats, logarithmically wound potentiometers, 6,000 ohms, 1/9.

HEAVY Duty Variable Resistances, slider type, wound on porcelain, 2,000 ohms, 1-4-amp., 5/-; 500 ohms, 1-2-amp., 5/-.

B.T.H. R.K. Minor Moving Coil, Speaker, 2,500 ohm field, with output transformer, 15/-; A.C. model, 200-250 volts, 25/-.

(This advertisement continued on next page.)



VORTEXION

MONODIAL MODEL
SUPER REGULATION

SHROUDED - - - - 32/-

For full list see under Chargers and Eliminators.

VORTEXION, 182, The Broadway, Wimbledon, S.W.19

EPOCH

MOVING COIL SPEAKERS

The Finest in The World in Each of Their Price-classes.

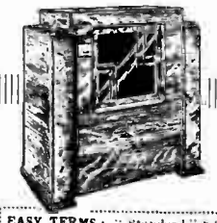
Ask your dealer or call for a demonstration at Exmouth House.

Send for New Booklet W.S.5a. It is free.

EPOCH RADIO MANUFACTURING Co. Ltd.
Exmouth House, Exmouth St., London, E.C.1

At the Junction of Rosebery Avenue and Farringdon Road.
'Phone: Clerkenwell 6666 (4 lines).

The "WHITEHALL" *range*



Whatever the size of your set there's a reasonably priced and handsome "Whitehall" cabinet to suit it.

WHITEHALL DE LUXE STANDARD.
16" wide, 11" deep, 17½" high. Choice Figured Oak, **30/-** cash.

WHITEHALL DE LUXE JUNIOR.
14" wide, 8" deep, 14" high. Choice Figured Oak, **21/-** cash.

Prices for above cabinets in Walnut or Mahogany on request.

WHITEHALL GEM.
14" wide, 8" deep, 10" high. Choice Figured Oak, **16/6** cash.

INTERIOR measurements are quoted for all cabinets.

All cabinets sent carriage paid on C.O.D.

EASY TERMS: "Standard," 8/9 down & 3 monthly payments of 8/9. "Junior," 7/3 down & 3 monthly payments of 6/3. Write for fully descriptive leaflet W.17.

MYERS-HUNT CABINET CO.,
7, AUSTIN ST., SHOREDITCH, LONDON, E.2

EASY TERMS PROMPT DELIVERY

Any Amplion, BlueSpot, Baker, Celestion, Epoch, R. & A. Rola, Sonochorde, or W.B. Moving Coil Speaker supplied

Send **5/-** *only*

and pay the balance by monthly instalments. No references. Entirely private and confidential.

KITS, PARTS, SETS, ELECTRIC CLOCKS ON EASY TERMS.

Write for Catalogue and details to:

TURNADGE & PARTNERS, LTD.
111, Fleet Street, London, E.C.4
Telephone: Central 1903

WRITE FOR OUR ALLOWANCE

for your surplus apparatus when purchasing a new set. Our long experience in Part Exchange and Mail Order and our steady connection with satisfied customers is your guarantee. A perfected system and highly trained staff mean rapid attention, prompt deliveries and courteous dealings.

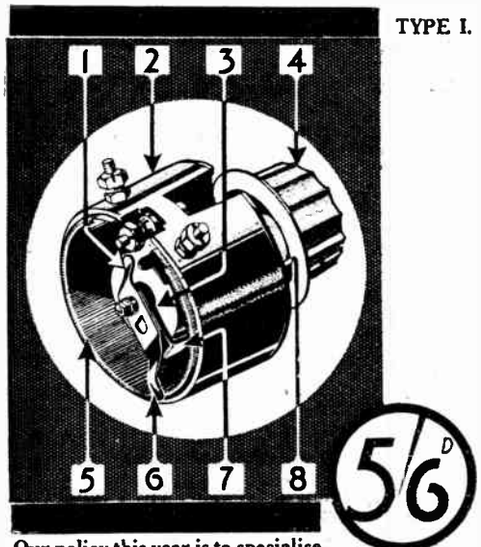
CORADIO

Dept. W.1, 78, Neal Street, Shaftesbury Avenue, W.C.2.

Specified for the A.C. MONODIAL SUPER

WATMEL 50,000 ohms POTENTIOMETER

TYPE I.



Our policy this year is to specialise in Potentiometers and Volume Controls of all types. You can, therefore, be certain when purchasing a Watmel Potentiometer, that you are obtaining the very best from a firm that is concentrating on this type of component.

This resistance is wound on a special non-shrinkable former, which gives perfect contact.

Note the points :—

1. Back self-cleaning contact.
2. Bakelite case, protects winding.
3. Large contact plate.
4. Polished easy grip knob.
5. Wire wound former (not compound with wire contacts).
6. Contact finger, phosphor bronze.
7. Positive stop.
8. One hole fixing, brass bearing bush, resulting in perfect bearing.

Any resistance up to 50,000 ohms 5/6

If you cannot get this component from your local dealer, write to us and we will send what you require within 24 hours. Write for Free Catalogue.

WATMEL WIRELESS CO. LTD.
Imperial Works, High Street, Edgware.
Telephone: Edgware 0323.

WatMel COMPONENTS
GET THE BEST OUT OF ANY SET

M.C.85.

Components, etc., for Sale.—Contd.

(This advertisement continued from previous page.)

ROLA 2,000 and 6,500 ohms, type F6, 17/6; Rola F5P.M. permanent magnet, 20/-; F6P.M. permanent magnet, 31/- (all with pentode output transformers).

AMPLION Moving Coil Speakers, type E.M.644, dual field 2,500 and 5,000 ohms (100-250 volts), with output transformer, 12 6; ditto, 200-250 volts A.C., 22 6.

B.T.H. Induction Type (A.C. only) Electric Gramophone Motors, 100-250 volts, 30/- complete; double spring gramophone motors, with 12in. turntable, 15/- complete.

SPECIAL Offer of Kolster Brandes Electric Gramophone Motors all complete with turntables, list price £5; No. 1 Super A.C., 100-250 volts, 35/-; No. 2 Super Universal, 100-250 volts A.C. or D.C., £2.

EKCO Microphones, complete with transformer, a really fine job, 18/6; wire wound Clarostat potentiometer, 50,000 ohms, 2/6.

WESTINGHOUSE Metal Rectifiers, 120 volts at 20 milliamps., 6/6; 180 volts at 30 milliamps, 8 6; 8 volts at 0.5 amp., 6 6; 250 volts at 60 milliamps., 10/-; 6 volts at 1 amp., 9/6; 12 volts at 1 amp., 12/6; 6 volts at 2 amps., 20/-.

ALL the Following Lines, 6d. each, or 5/- per dozen assorted: Trimming condensers, shielded S.G. or pentode leads, Polymet 0.01 condensers, 2ft. lengths of screened wire, 5-pin valve holders, Crabtree sunk 5-amp. switches.

AMPLION Six Receivers, listed £21, complete with valves, 200-250 volts A.C.; 9 guineas.

FOR Callers Only.—The following valves, guaranteed as new, at half list price: D.C.Pen., D.C.2S.G., U.U.120/350, D.H., A.C.P., V.D.S., D.C.S.G., A.C.P.1, 410P.T., D.H., P.X.4, M.V.S.G., P.T.41, S4V.A., M.S.4B, D.P.T., M.S.4, A.C.S.G.

ALL Orders to 20-22, High St., Clapham, S.W.4. (Macaulay 2188. Closed 1 o'clock Wednesday. Open to 9 o'clock Saturdays. Nearest Station, Clapham North Under-ground. [2172

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CONDENSERS.—Polar tubs, two-gang, 8/6; Ormond No. 4, Astra, etc., 0.0003 and 0.0005 variables, 2 3; ditto S.M., 3 3; Telexors, 5/11; see 8-page bargain list for others.
ELIMINATOR Kits, A.C., output 300v. 125 m.a., complete, 47 6; 350v. 70 m.a., with L.T. winding for heaters, giving four decoupled tappings, and one power, less valve (U.12, etc.), 52 6; metal rectified kit, giving output of 200v. at 50 m.a., 47 6.
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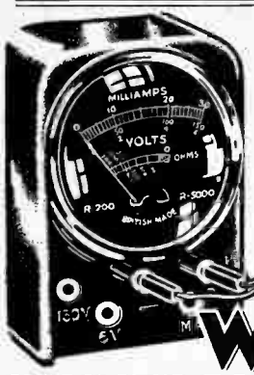

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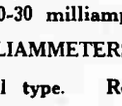

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SMOOTHING Chokes, 20 henry 30 m.a. (400 ohms), 6/-; 30 henry 60 m.a. (600 ohms), 7/-; 50 henry 60 m.a., 8/6 (500 ohms); 20 henry 120 m.a. (375 ohms); 9/3.

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ROTARY Converters, electric dynamic, 1933 models (2 only), used demonstration only, 90-watt model, listed £14, at £9; 180-watt model, listed £17 5, at £12, complete with silence cabinet and filter unit.

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T. W. THOMPSON and Co., 14 and 17, Strutton Ground, Westminster, S.W.1.

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SEE Displayed Advert, page 12.

T. W. THOMPSON and Co., 14 and 17, Strutton Ground, Westminster, S.W.1. [2182

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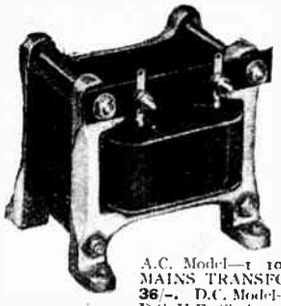

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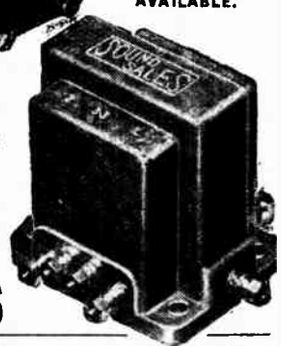

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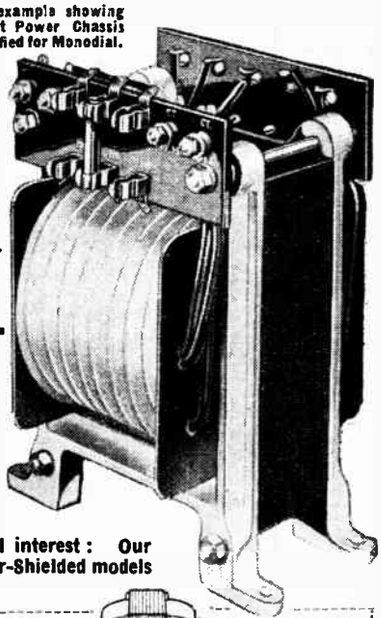

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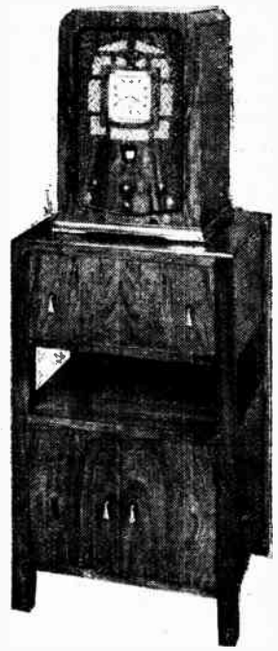

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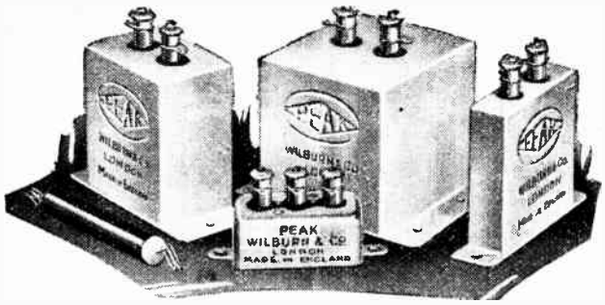

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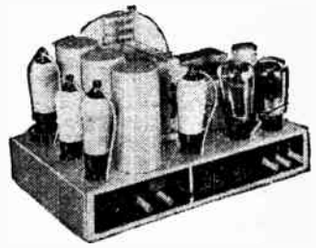

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INDEX TO ADVERTISEMENTS.

	PAGE
Alton Battery Co., Ltd.	
Accumulators Elite	14
Atwater-Kent (G. A. Brittain & Co., Ltd.)	Inside Front Cover
Automatic Coil Winder & Elec. Equipment Co., Ltd.	Front Cover
Baker's "Selhurst" Radio	18
Black, Alexander	20
British Institute of Eng. Technology	14
British Pix Co., Ltd.	v.
British Radio Institution	14
British Radiophone, Ltd.	8
British Rola Co., Ltd.	12
Britannia Batteries, Ltd.	11
Bryce, W. Andrew, & Co.	12
Bulgin, A. F., & Co., Ltd.	16
Burton, C. F. & H.	Front Cover and 13
Challis, O. M.	4
Cole, E. K., Ltd.	10
Columbia Graphophone Co., Ltd.	1
Colvern, Ltd.	Front Cover & 4
Coradio	16
Cosser, A. C., Ltd.	22
Cressall Manfg. Co.	13
Dubilier Condenser Co. (1925), Ltd.	6
Edison Swan Electric Co., Ltd.	5
Electrical Trading Association	vi.
Epoch Radio Manf. Co., Ltd.	16
Exide Batteries	3
Faraday Allwave Wireless, Ltd	21
Formo Co.	12
General Electric Co., Ltd.	9
Gripso Co.	18
Hoayberd, F. C., & Co.	14
Heys, Leonard	18
Igranic Electric Co., Ltd.	20
Lyons, Claude, Ltd.	8
Myers-Hunt Cabinet Co.	16
Multitone Electric Co., Ltd.	2
Osborn, Chas. A.	21
Ormond Engineering Co., Ltd.	Back Cover
Ostar-Ganz (Eugen Forbat)	14
Parima Manfg. Co.	20
Partridge & Mee, Ltd.	Inside Front Cover
Partridge Wilson & Co.	20
Pepper, Trevor (Scradex)	20
Peto-Scott Co., Ltd.	15
Picketts	18
Players	vi.
Radio Furniture & Fittings, Ltd.	19
Radio-Gramophone Development Co.	v.
Radio Resistor Co.	14 & 16
Reproducers & Amplifiers, Ltd.	20
Rich & Bundy, Ltd.	20
Riverside Manufacturing Co., Ltd	14
Ryalls Radio	18
Savage, W. Bryan	17
Scott Sessions & Co.	13
Sound Sales, Ltd.	19
Telegraph Condenser Co., Ltd.	2
Telsen Electric Co., Ltd.	Front Cover
Thompson, T. W., & Co.	12
Turnadge & Partners, Ltd.	16
Varley (Oliver Pell Control, Ltd.).	7
Vortexion	16
Wates Radio, Ltd.	18
Watmel Wireless Co., Ltd.	17
Webb's Radio Electric Stores	20
Westinghouse Brake & Saxby Signal Co., Ltd.	Inside Back Cover
Wilburn & Co.	21
Wright & Weaire, Ltd.	6

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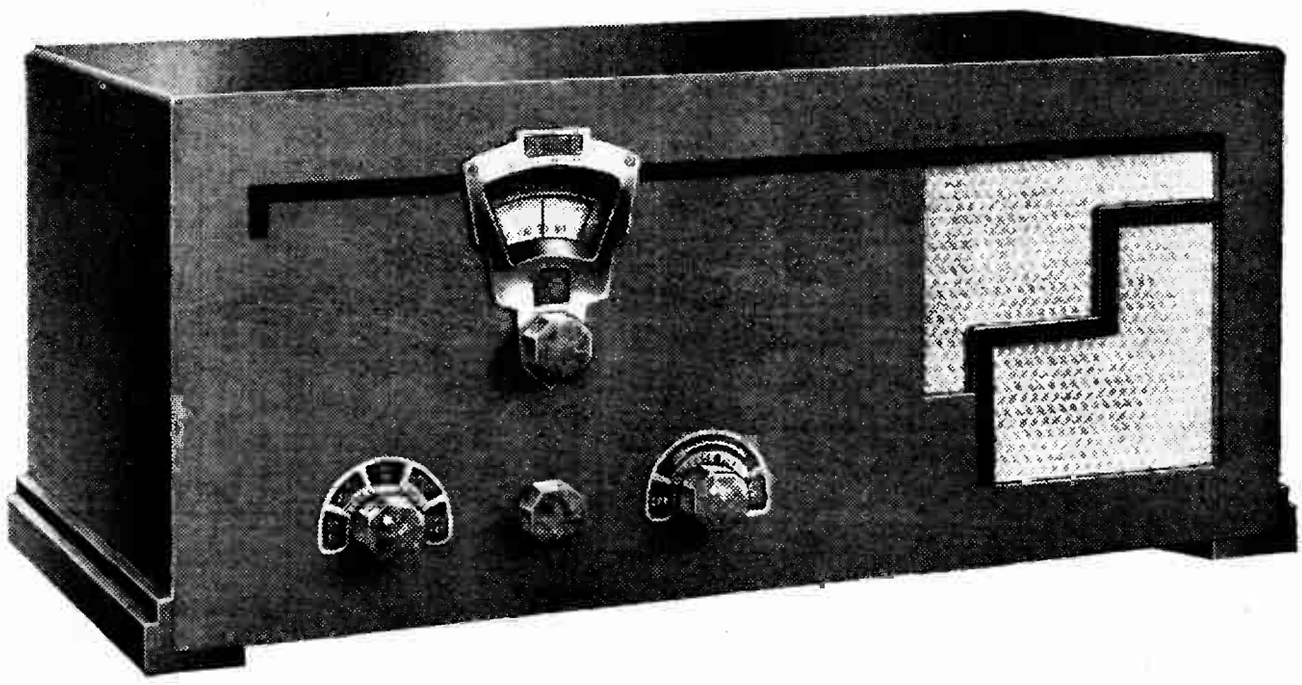

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AT HOME

NATIONAL — Mr. Maurice Dobb: "Communism." Symphony concert from Queen's Hall. Strange music.

LONDON REGIONAL — Variety programme. Orchestral concert.

MIDLAND REGIONAL — Pianoforte recital of works by Moszkowski. "Six to Four on the Field," a musical farce, by E. Lewis, C. Brewer and G. Squiers.

NORTH REGIONAL — Programme of music by Newcastle composers.

WEST REGIONAL — Orchestral concert from the National Museum of Wales.

SCOTTISH REGIONAL — Choral concert from St. Andrew's Hall, Glasgow.

BELFAST — Orchestral concert from Strammillis.

ABROAD

BERO-MUNSTER — 6.45 p.m. Music by Arthur Honegger, from Zurich.

BRUSSELS (No. 1) — 9 p.m. Lamoureux concert, from Paris.

BUDAPEST — 6.30 p.m. Operetta: "Die Fledermaus" (J. Strauss).

COPENHAGEN — 9.15 p.m. Music on Old Instruments, by the Frieburg Chamber Trio.

HAMBURG — 9.25 p.m. The Hanover Station Orchestra.

HEILSBERG — 8 p.m. The Königsberg Opera House Orchestra.

RADIO-PARIS — 9 p.m. Lamoureux concert from the Salle Gaveau.

STRASBOURG — 8.30. Symphony concert from the Palais des Fêtes.

WARSAW — 7 p.m. "Welcome Spring!" by the Station Orchestra.

ATHLONE

413 metres; 60 kW.; and **CORK, 224.4 metres.—1.30 to 2.0 p.m.,** Time, Weather, Stock Report, and Popular Music on Gramophone Records. In the interval, Grand National Sweep Results. **6.0,** Light Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Variety Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** German Lesson. **8.0,** Concert of Opera Music by the Dublin Operatic Society. **9.0,** In a Fog—Play presented by Elizabeth Young and Company. **9.30,** Philip Martin (Millean Pipes). **9.45,** The Station Orchestra. **10.30,** Time, News, Weather, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW. **6.0 p.m.,** Trio Concert. **7.0,** Modern Dance Music, relayed from the Ritz Hotel. **7.30** (in an interval), Exchange Quotations. **8.0,** Light Music on Gramophone Records, followed by News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **9.5,** Concert by the Station Orchestra. **9.45,** Concert of Music by Juan B. Lambert. **10.15,** Sextet Concert relayed from the Granja Royal. **11.0** (in an interval), News. **12 Midnight** (approx.), Close Down.

BARI

270 metres; 20 kW.—**7.0 p.m.,** Agricultural Report, Tourist Report and Dopolavoro Announcements. **7.20,** Giornale Radio and Press Review. **7.30,** Time and Announcements. **7.35,** Chamber Music Concert. Soloists: Franco Ruggiero (Pianoforte), Mario de Santis Bruno (Soprano), and Andrea Mongelli (Bass). Overture, Figaro (Mozart); Pianoforte Solo: First Movements from the Sonata in F Sharp Minor (Brahms); Soprano Solo: O flore (Santoliquido); Bass Solos: Song (Schubert), (b) Die junge Nonne (Schubert); Soprano Solos: (a) Triste veglia (Cuarnier), (b) Ich liebe dich (Grieg); Pianoforte Solos: (a) Legend (Paderevski), (b) A briglia sciolta (Gubitosi); Bass Solo: She loves me (Vaccaj); Soprano Solo: L'assinolo (Zandonai); Pianoforte Solo: Scene infantili (Napoli); Bass Solo: The Cossack from the Volga (Vaccaj); Soprano Solo: Spring (Giuseppe Mulé); Pianoforte Solo: The great gate of Kiev (Mussorgsky). In the interval, Talk. **9.30,** Popular Music on Gramophone Records. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—**4.0 p.m.,** Medical Talk. **5.55,** Time and Programme Announcements. **6.0,** Reading. **6.45,** Orchestral Concert of Rhapsodies: Yugoslav Rhapsody, No. 3 (Dominis); Hebrew Rhapsody (Lewandovski); Rhapsody in B Minor (Hartung); Second Hungarian Rhapsody (Liszt). **7.45,** Radio Play. **8.15,** Quintet, Op. 12 for Pianoforte, Two Violins, Viola and 'Cello (Novak). **8.45,** News, followed by relay of European Stations.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.— **12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert from **Berlin (Witzleben). 1.45,** Programme for Children. **2.30,** Weather and Exchange. **2.45,** Reading: Das Bettelweib von Locarno (Heinrich von Kleist). **3.0,** Talk: What is Stereoscopy? **3.30,** See **Hamburg 4.10,** Talk: Contemporary Systems of Defence—France. **4.30,** Talk: Countries and Peoples. **5.0,** Duet Recital by Trante Lienert (Soprano); and Friedrich Hausburg (Tenor); Two Duets (Schubert): Friedrich Hausburg (Tenor); Two Duets: (a) Liebe ist ein süsses Licht, (b) Nur wer die Sehnsucht kennt; Tenor Solo, Entflieh mit mir (Schumann); Soprano Solo, Es fiel ein Reif (Schumann); Duets (Schumann); (a) Auf ihrem Grab, (b) Liebhabers Ständchen, (c) Unterm Fenster, (d) Dance Song. **5.25,** Topical Talk. **5.40,** Wireless Technical Talk. **5.55,** Weather and Announcements. **6.0,** English Lesson. **6.30,** A Poem. **6.35,** Hugo Wolf Song Recital, by Rose Walter (Soprano); Heb auf dein blondes Haupt; Das verlassene Mägdlein; Auf einer Wanderung; Three Sacred Songs: (a) Nun wandre, Maria, (b) Auf ein altes Bild, (c) Führ mich, Kind, nach Bethlehem; Verschwiegene Liebe; Nun lass uns Frieden schliessen. **7.0,** Talk: Roman Law and German Law. **7.30,** Programme from **Leipzig. 9.10,** Weather, News and Sports Notes. **9.45,** Weather Report for Shipping. **10.0** Programme from **Langenberg. 11.0** (approx.), Close Down.

BERLIN

WITZLEREN, 419.5 metres; 1.5 kW.—**5.20 p.m.,** Max Reger Commemoration from the Marienkirche, Berlin: Introduction and Passacaglia in D Minor for Organ: Talk: Reger and his Influence on Church Music; Two Songs for Soprano, Op. 137: (a) Lass dich nur nichts dauern, (b) O Herre Gott, nimm du von mir; Intermezzo for Organ, Op. 59, No. 3. **5.45,** Talk by Bruno Doehring: Books in my Life. **5.55,** The Witzleben Station informs its Listeners . . . **6.0,** Topical Talk. **6.10,** Folk Songs. **6.40,** Topical Talk. **6.55,** Announcement. **7.0,** See **Vienna. 8.0,** Talk by Ina Seidel: Books in my Life. **8.10,** Pianoforte Recital by Wilhelm Kempff, relayed from the Singakademie: Impromptu in F Minor, Op. 142, No. 1 (Schubert); Pianoforte Piece in B Minor from Aus meinem Tagebuch, Op. 82 (Max Reger); Swedish Wedding Music (Wilhelm Kempff). **9.0,** Weather, News, and Sports Notes, followed by Dance Music. **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—**7.30 p.m.,** News and Market Prices. **7.40,** Theatre Review. **7.55,** Lottery Results. **8.0,** Agricultural Talk. **8.30,** Symphony Concert: Semper fidelis (Sousa); Waltz, Les Sirènes (Waldteufel); Overture, The Grand Duchess of Gerolstein (Offenbach); Les roses de Grand'mère (D'Avray-Cabanne); Je n'ai qu'un amour, c'est toi (Boyer-Sylviano); Air from The Land of Smiles (Lehar); Air from Paganini (Lehar); Selection from La Bohème (Pucini-Tavau); Ballet russe (Luigini-Fourdrain); Melody (Szulc-Salabert); O nuits de Rio (Thompson); La pluie, le vent, le neige (Scotto); La ronde des heures (Sylviano); Nous dire adieu (Moretti); Selection from The Count of Luxembourg (Lehár-Monton); Guitare (Bizet); L'amour (Verdum-Oberfeld-Salabert).

BRATISLAVA

279 metres; 14 kW.—**4.40 p.m.,** Hungarian Programme: Bozena's Sin—Play in Three Acts (Novak). **6.0,** See **Prague. 6.25,** Max Reger Recital for the Sixtieth Anniversary of the Composer's Birth, relayed from the Franciscan Church. Sonata in F Sharp Minor for Organ, Op. 33; Four Sacred Songs. **7.0,** Light Music on Gramophone Records. **7.20,** See **Prague. 9.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres, 60 kW.; and **GLEIWITZ, 253 metres.—12.10 p.m.,** Gramophone Concert: Prologue to I Pagliacci (Leoncavallo); Air from Madame Butterfly (Puccini); Madame Butterfly's Opening Song, from Madame Butterfly (Puccini); Song from La belle Hélène (Offenbach); Aria from Il Seraglio (Mozart); Aria from Figaro (Mozart); Elizabeth's Greeting, from Tannhäuser (Wagner); Song from Der Bettelstudent (Millöcker). **12.45,** Time, Weather, News, and Exchange. **1.5,** Strauss Gramophone Concert: Concert Waltz, Loreley-Rheinklänge (Joh. Strauss, Sen.); Mein Lebenslauf ist Lieb und Lust (Jos. Strauss); Mazurka, Frauenherz (Jos. Strauss); Waltz, Leuchtkäferl'n (E. Strauss); Waltz, Arabian Nights (Joh. Strauss); Gondola Song from A Night in Venice (Joh. Strauss); Waltz, Tales from the Vienna Woods (Joh. Strauss); Radetzky March (Joh. Strauss, Sen.). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Talk: The City Street from a Cultural Point of View. **3.0,** Educational Talk. **3.30,** Eugen d'Albert Pianoforte Recital: Four Pianoforte Solos, Op. 5, Nos. 1-4; Nocturne, Op. 29, No. 3; Scherzo, Op. 29, No. 5. **4.0,** Review of the March Number of Der Oberschlesier. **4.20,** Agricultural Prices. **4.25** (approx.), Talk: How to obtain an Apprenticeship. **4.40,** Recital of Upper Silesian Songs by Karl Mirus. **5.10,** Talk: The Roads of Upper Silesia. **5.30,** Talk: Protection against Poison Gases. **5.50,** Talk: How a Miner amuses himself after his Day's Work. **6.10,** Concert of Light Music by Bertis and his Soloists. In an interval at **6.35,** Weather and Farmers' and Market Prices. **7.0,** Talk: Goethe's Philosophy. **7.30,** Jitz muss der Tud zum Durfe naus!—a Silesian Spring Cantata (Karl Sezuka). **8.30,** Announcements. **8.40,** Orchestral Concert of Old Dance Music. **9.30,** Time, Weather, News, Sports Notes, and Programme Announcements. **9.50,** Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BRNO

342 metres; 85 kW.—**5.25 p.m.,** German Transmission: News, Talk on Films and Talk for Workers. **6.0,** See **Prague. 6.25,** Popular Band Concert. **6.50** till Close Down, See **Prague. 9.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—**12 Noon,** Concert, relayed from the Memline Hall, Antwerp. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Radio Orchestra, conducted by C. Walpot: March of the Footballers (Bury); Waltz, Memories of Josef Strauss (Fahrbach); Overture, Masaniello (Auber); Habanera, The Blue Pavilion (Armandola); Orchestral Suite (Rogister); Xylophone Solo, Czardas No. 1 (Michiels); Ballet Suite (Popy). **5.0,** Concert by Mickey's Club Jazz Attraction. **6.0,** Talk on the Belgian Sculptor, Ernest Wynants. **6.15,** La Procession Nocturne (Rabaud), on Gramophone Records. **6.30,** Song Recital by Alice Plato: Berceuse (Diepenbroeck); Tristesse (Pierné); Connaissiez vous mon hirondelle (Pierné); Rain (Respighi); Aria from The Snow Maiden (Rimsky-Korsakov); Lioubava's Aria from Sadko (Rimsky-Korsakov). **6.45,** A Sketch. **7.0,** Song Recital by Marc Chantraine: Erlkönig (Schubert); The Two Grenadiers (Schumann); Danse macabre (Saint-Saëns). **7.15,** Talk: Political Parties in Yugoslavia, Romania, and Czechoslovakia. **7.30,** Medical Talk. **8.0,** Elegiac Melodies, Nos. 1 and 2 (Grieg), on Gramophone Records. **8.10,** Asile de Nuit—Comedy in One Act (Maurcy). **8.35,** Suite, La Feria (Lacôme) on Gramophone Records. **8.45,** Answers to Correspondence. **9.0,** See **Paris (Radio Paris).** In the Interval, Le Journal Parlé.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Concert by the Station Orchestra, conducted by Charles Walpot: March of the Marionettes (Hullebroeck); Overture, Poet and Peasant (Suppé); Waltz, Dolores (Waldteufel); Selection from Paganini (Lehár); Baby plays Soldiers (de Micheli); Bei Zigeunerkapelle (Meyer-Helmund); Aubade à Kiki (de Boeck); Ballet Music from La Gioconda (Ponchielli). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert relayed from the Memline Hall, Antwerp. **5.0,** Concert by the Radio Orchestra, conducted by Charles Walpot: Overture, The Bohemian Girl (Balfe); Waltz, Tales from the Vienna Woods (Joh. Strauss); Rhapsody in B (Hartung); Algerian Scene (Ketelbey); Selection from The Merry Widow (Lehár); Love Song (Candael); Orchestral Suite, Four Ways (Coates). **6.0,** Gramophone Records of Schumann and Liszt Music. **6.15,** Talk: Tales of the Congo. **6.30,** Nine Songs (Karel Candael), sung by Mme. Anna Candael; the Composer at the Pianoforte. **6.45,** Gramophone Concert of Light Music. **7.15,** Talk: Dramatists and Critics. **7.30,** Talk on International Affairs. **8.0,** Pinksternacht—Musical Play in Two Acts (Roels). In the intervals: Tales of the Congo and Le Journal Parlé. **10.45,** Dance Music on Gramophone Records.

BUCHAREST

394 metres; 12 kW.—**4.0 p.m.,** Concert by the Station Orchestra: Persia March (Strauss); Waltz (Faulx); Hungarian Dances, Nos. 1 and 2 (Brahms); Selection from Rigoletto (Verdi); Cossack Song (Ganvin). **5.0,** News and Time Signal. **5.10,** Talk. **5.25,** Concert (contd.): Selection from La Fête chez Thérèse (Hahn); Potpourri (Dron). **6.0,** Talk: New Tendencies in Romanian Literature. **6.40,** Light Music on Gramophone Records. **7.0,** Song Recital. **7.20,** Pianoforte Recital. **7.50,** Talk. **8.5,** Violin Recital: Two Romances in G and in F (Beethoven); Chanson Louis XIII and Pavane (Couperin-Kreisler); Tambourin (Leclair-Kreisler). **8.35,** Dance Music from the Elysée Restaurant. **9.0,** News.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on **8.0 metres** from **6.30 p.m.** till Close Down.—**4.0 p.m.,** Dance Music. **4.50,** Italian Lesson. **5.20,** Gramophone Concert: Traumversunken (Weinberger); Prayer from Tosca (Puccini); Selection from Carmen (Bizet); Es ritten drei Ritter (Römer); Song (Frater); Song (Sander); Grock in Items from his Repertoire: Waltz, The Cuckoo (Jonasson); Die Dorfmusik (Fryberg); Tango Song (Gross); Tango Song (Vertes); Blues (Megyeri); Knowst thou my love (Drdla); Original Tanganika (Bazant); Vinetaglocken (Lindsay-Theimer); Selection from Ball im Savoy (Abraham); Mancika (Eisemann). **6.30,** Die Fledermaus—Operetta (Joh. Strauss); relayed from the Opera House. News in the intervals. After the Operetta: Cigány Concert from the Hotel Britannia.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Time and Chimes from the Town Hall. **11.5,** String Ensemble Concert conducted by A. Bendix, relayed from the Wivex Restaurant. **12 Noon,** Memorial Programme for the 125th Anniversary of the Battle at Odde, relayed from Odde. **1.0 to 2.0,** Interval. **2.0,** Gramophone Concert. **2.30,** Concert by the Mogens Hansens Instrumental Ensemble: Spanish March, Hispaña (Dreyer); Overture, La Sonnambula (Bellini); Concert Waltz, Elfentanz (Lehar); Romanian Folk Dance (Béla-Bartok); Serenade, An dich (Czibulka); Intermezzo, Burlesca (Culotta); Selection from Show-Boat (Kern); Valse triste (Veesey); Scherzo for Strings from Novellette; The Merry Marionettes (Fetras); Waltz, Air de Ballet (Fetras); March (Ryming). In the Interval at **3.15,** Talk for Women. **4.40,** Exchange and Fish Market Prices. **4.50,** Agricultural Talk. **5.20,** Elementary French Lesson. **5.50,** Weather. **6.0,** News. **6.15,** Time Signal. **6.30,** Talk on De Valera. **7.0,** Town Hall Chimes. **7.1,** Charles Kjerulf Concert by the Radio Orchestra, conducted by Emil Reesen; Soloists, Tenna Frederiksen Kraft (Songs), Ely Fischer Kjerulf (Songs), and Marins Jacobsen (Songs): Prelude to Densen paa Koldinghus; Introductory Talk by Axel Kjerulf; Three Songs from Sange ved Havet; Dans and Blanchefleur from Dansen paa Koldinghus; Torch Dance; Songs (a) Hvor staedes nu min Gertrud, (b) Solen skinner paa Kristianshavn; Two Songs from Gadens Digte; Song from Gadens Bönn; Song from Gadens Digte. **8.0,** Topical Talk. **8.30,** The Nutcracker Suite (Tchaikovsky), by the Radio Orchestra. **9.0,** News. **9.15,** Music on Old Instruments of the Baroque and Rococo Period by the Freiburg Chamber Trio; Glees (Berrubosco); Zart schön Jungfräulein (Melchor Franck); Ei du feiner Reiter (Scheidt); Der rheinische Wein (Krieger); Wie er wollte geküsset sein (Hammerschmidt); Invention (Bach); Die Tabakspfeife (Bach); Minuet (Telemann);

SUN. MON. & TUES. PROGRAMMES

Quand je vais au jardin; Musette; Aus dem Augsburger Tafelkonfekt (Rathgeber). 10.0 (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**6.0 to 7.0 p.m.,** Programme in English by the I.B.C. C. Danvers-Walker, B. McNabb and F. Lamping announcing. **6.0,** Concert of Light Music for Portsmouth and Southsea Listeners: Hornpipe (arr. Byng); Songs: (a) Call me Darling, (b) Home (van Steeden), (c) Only a Rose (Friml); Jigs and Reels (arr Byng; Songs: (a) Marta, (b) Save the Last Dance for me, (c) Song of the Vagabonds (Friml). **6.30,** Pianoforte Recital for Isle of Wight Listeners: Rythm Selection; A Bench in the Park; You, just wonderful you; Selection from Words and Music; Just hummin' along; Some more Rhythm; Swingin' in a Hammock. **7.0,** Programme in French. **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music: One Night alone with you; Lady Luck; Sweet Jennie Lee; Telling it to the Daisies; The Alpine Milkman; Shout for Happiness; My Heart is bluer than your Eyes; I've got a feeling; Oh what a Night; Bandy Bertha's Birthday; In a quiet Corner; Reaching for the Moon; Yet you forgot; It's Unanimous now; If I didn't have you. **11.0,** Military Band Concert: Overture, Rienzi (Wagner); El Abanico (Javaloyes); La Grive (Cole); Light of Foot (Latann); March, Pomp and Circumstance (Elgar); A Frangesa (Costa); Here, there and Everywhere (Bosc). **11.30,** Opera Music: Selection from Il Trovatore (Verdi); Aria from The Magic Flute (Mozart); Way for the Factotum, from The Barber of Seville (Rossini); Selection from Rigoletto (Verdi); Aria from Figaro (Mozart); Vulcan's Song from Philémon et Baucis (Gounod). **12 Midnight,** Variety Concert: Rhapsody in Love; I'd rather not; Marche Joyeuse; I am the Words; Annette; Silly Dick; Little White Lies; Il Bacio. **12.30 a.m. (Thursday),** American Songs: I don't work for a Living; I'm gonna yodel my way to Heaven; Fortunes Galore; Can't we talk it over; Hallelujah I'm a Bum; They cut down the Old Pine Tree; The Railroad Boomer. **1.0,** Concert by an Accordion Band: Javanette (Bozi); Volante March (Alexander); The Waltz that made you mine; Senorita (Alexander); Lullaby of the Leaves (Young); Bertina Waltz; 'Leven Pounds of Heaven (Malneck). **1.30,** Concert of Popular Songs; Only for you (Weinberg); A Banjo Song (Homer); My Song of the Nile (Meyer); Wid de Moon, Moon, Moon; Mammy is gone (Henderson); Since you went away (Johnson); Just keepin' on (Carter); Lonesome Moonlight (Strickland). **2.0,** Dance Music: Too many Tears; Listen to the Germau Band; We all wanna know why; A great big Bunch of you; Bahama Mama; Mad about the Boy; If you were only mine; The Younger Generation; Moonlight, the Danube and you; Let's put out the Lights; Your'e my Everything; Moon; There's another Empty Saddle; Gettin' Sentimental. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW; **CASSEL, 245.9 metres, and TRIER, 259.3 metres.—12.30 p.m.,** Concert from **Langenberg. 1.0,** News Bulletin. **1.10,** Sponsored Concert. **2.0,** Weather Report. **2.10,** Time and Exchange. **2.15 to 3.15,** Programme for Young People. **3.50,** Exchange. **4.0,** See **Munich. 5.15,** Market Prices. **5.25,** Talk: The Future of Employees' Insurance. **5.50,** Talk; Max Reger. **6.15,** Time, Programme Announcements, Weather and Exchange. **6.20,** Organ Recital of Music by Max Reger, relayed from the Friedenskirche. **7.15 to 9.10,** See **Stuttgart. 9.10,** Time, News, Weather and Sports Notes. **9.45,** See **Stuttgart 11.0,** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.—3.30 p.m.** (from **Bremen**), Ballad Concert by the Bremen Municipal Orchestra, conducted by Eduard Martini and Fritz Schweinsberg (Bass). **4.30,** How a Book is produced—a Tour through a Hanseatic Publishing Firm. **5.50,** Frankfurt Exchange and Hamburg

Market Prices. **6.0** (from **Bremen**), Talk: The German Mail Boats' Trips to Australia in Earlier Days. **6.25,** Weather Report. **6.30,** Paul Alverdes reads from his own Works. **7.0,** Concert by the Station Orchestra, conducted by José Eibenschütz; Soloist: Palma von Paszthory-Erdmann (Violin): Concerto Op. 77 for Violin and Orchestra (Brahms); Symphony No. 5 in E Minor, From the New World (Dvorak). **8.25,** News. **8.35,** Organ Recital by Heinz Bergmann, relayed from St. Martin's Church, **Bremen:** Organ Sonata No. 3 in A (Mendelssohn); Ave Maria (Arcadelt-Liszt); First Movement from the Fantasia Sonata in A (Rheinberger). **9.5,** Time and News. **9.15,** Topical Talk. **9.25** (from **Hanover**), Concert by Hanover Station Orchestra, conducted by Otto Ebel v. Sosen; Soloists: Emil Bartels ('Cello) and Fritz Zille (Flute): Largo for 'Cello (Handel); Adagio from the Pathetic Sonata (Beethoven); Andante from the Concerto in D for Flute (Mozart); Allegretto from the Sonata Op. 164 (Schubert); Allegro from the Symphony in B Flat (Schumann); Saltarello from the Italian Symphony (Mendelssohn); Graud Chromatic Gallop (Liszt). **10.20,** Ice Report. **10.25,** Concert relayed from the Café Wallhof.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW.; and **DANZIG, 453.2 metres.—12.5 p.m.,** Popular Music on Gramophone Records. In the interval at **12.20,** News. **1.30,** Programme arranged by the Post Office, with Gramophone Records. **2.0,** Agricultural Prices and Exchange Rates. **2.20,** Hints for the Housewife. **2.30,** Programme for Children. **3.0,** Talk for Parents. **3.30,** See **Hamburg. 4.30,** Book Review. **4.50,** Dr. Heinrich Bauer reads from his book, Schwert im Osten. **5.15,** Agricultural Prices. **5.20,** Ice Report. **5.30,** Violin and Harp Recital by Franz Schmidt and Friedel Ellguth: Nocturne (Chopin); Gavotte (Gossec); Minuet (Hasselmanns;) Spring Song (Mendelssohn); Minuet (Mozart); Liebesfreud (Kreisler) **6.0,** Bridge Lesson. **6.25,** Weather Report. **6.30,** Every Man is the Architect of his own Fortune—Radio Play (Otto Zoff), with Music by Harry Ralton. **7.50,** News. **8.0,** Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky: Overture in C. No. 2, in Italian Style (Schubert); Symphonic Poem, Sphärenklänge (Hallén); Suite, Frühlingsreigen (Schjelderup); Capriccio (Graedener); Gebet, from Höllisch Gold (Bittner); Spanish Rhapsody, Op. 8 (Ferroni); Waltz (Waldteufel). **9.20,** Weather and News. **9.40,** Dance Music relayed from **Berlin (Witzleben). 11.0** (approx.), Close Down.

HILVERSUM

Announced HUIZEN, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—Programme of the Christian Radio Society (N.C.R.V.). **11.55 a.m.,** Spring—Trio Concert, with Songs. **1.40,** Agricultural Talk. **2.25,** Programme to be announced. **2.40,** Reading. **3.10,** Organ Recital. **3.40,** The Italian Symphony in A (Mendelssohn), on Gramophone Records. **4.10,** Organ Recital (contd.). **4.40,** Programme for Children. **5.40,** Gramophone Music: Selection from Masaniello (Auber); Coronation March from The Prophet (Meyerbeer). **5.55,** Talk by Heer Amelink. **6.10,** Elementary English Lesson. **6.40,** Talk arranged by the Department of Buildings and Roads. **7.10,** Police Notes. **7.25,** News Bulletin. **7.40,** Programme of Music and Addresses arranged by the Salvation Army. **9.10,** Organ Recital from **Amsterdam. 10.10,** News Bulletin. **10.20,** Gramophone Concert: Potpourri, Also sprach Meyerbeer (Urbach); Musikalisches Wandelpanorama (Lincke); Chanson (Friml); In a Clock store (Orth); Love's old sweet song (Molloy); Prelude in E Flat, Op. 99 (Saint-Saëns); Chorals: (a) Der Herr ist König (Brünning), (b) Jauchzet dem Herrn (Thiel); Psalm 89, Verse 1. **11.10** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres;** 8.5 kW.—Programme of the Workers' Radio Society (V.A.R.A.). **11.40 a.m.,** Concert by De Notenkrakers, conducted by D. Wins. Espafia (Dreyer); Wiener Praterleben (Translateur); Scandinavian Suite (Frederiksen); The Capricious Musical Box (Fresco); Rosita (Dupont); Gnomenzug (Armandola); Gramophone Records; Eisblumen (Leuschner); The Musical Snuff-Box (Nikolaievsky); The Cockchafers' Tea Party (Nonck); Patsy (Myddleton); Gramophone Records; Take me back again (Calzelli); Rêve (Malderen); Far away where the Lighthouse wakes (Gray); Wenn du dein Herz verlierst (Stransky); Lawd, you made the Night too long (Young); Seville (Abraham). **1.25 to 1.40 p.m.,** Interval. **1.40,** Programme for Women. **2.40,** Programme for Children. **5.10,** Organ Recital by J. Jong. Selection from Czar and Carpenter (Lortzing); Selection from The Nutcracker Suite (Tchaikovsky); Russian Serenade (Bakalainikov); The Juggler (Groitsch); Lehár Potpourri (Hruby). **5.55,** Popular Music on Gramophone Records. **6.10,** R.V.U. Programme. **6.40,** Talk. **7.0,** Concert by the V.A.R.A. Orchestra, conducted by H. de Groot: Wir gehen am Mosel vorüber (Cornelius); Waltz, The Blue Danube (Joh. Strauss); Am Bosporus (Lincke); Moonlight on the Alster (Fetras); Was die Donau erzählt (Morena); Wolga-Geister (Leuschner). **7.38,** S.O.S. Messages. **7.40,** The St. Matthew Passion—Oratorio (Bach), by a Mixed Choir, a Boys' Choir, an Orchestra, and Soloists. **9.10,** Talk. **9.30,** Concert by the V.A.R.A. Orchestra (contd.). **10.40,** News Bulletin. **10.55,** Variety Music on Gramophone Records. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Prague.**

KOSICE.—See **Prague.**

LANGENBERG

473 metres; 60 kW.—**12 Noon,** Concert, conducted by Eysoldt. In the interval at **1.0 p.m.,** News. **1.30,** Sponsored Programme with Gramophone Records. **2.30,** Economic Notes and Time. **2.50,** Programme for Children. **3.20,** Talk: In a U-Boat, 1917-1918. **3.40,** Talk: Evening and Night. **4.0,** Concert, conducted by Wolf; Soloist: Andreas Holzer (Baritone); Overture, Orpheus in the Underworld (Offenbach-Binder); Ballet égyptien (Luigini); Viennese Songs; Selection from The Mikado (Sullivan); Cigany Music (Pataky); Potpourri, Monsseux (Waldteufel). **5.20,** Talk: The Rhenish Politician, August Reichensperger, on the 125th Anniversary of his Birth. **5.45,** Weather, Time, Economic Notes, and Sports Results. **6.0,** Talk: An Interview with a Private Welfare Organisation. **6.20,** Health Talk. **6.35,** Talk: Causality and Freedom. **6.55,** News. **7.0,** Concert by the Station Orchestra, conducted by Buschkötter; Soloist: Udo Dammert (Pianoforte); Fantasia for Pianoforte and Orchestra (Debussy); Caprice for Pianoforte and Orchestra (Stravinsky). In the interval from **7.50 to 8.10,** Book Day Programme: On reading Books (Hermann Hesse). **9.0,** News and Sports Notes. **9.20,** Serenade and Dance Music, conducted by Eysoldt.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW; and **DRESDEN, 319 metres.—3.0 p.m.,** Programme for Children. **4.50,** Weather, Time and Exchange. **5.0,** Review of Books about Hugo Wolf. **5.30,** Italian Lesson. **5.50,** The Leipzig Station informs its Listeners. . . **6.0,** Talk in connection with Book Day: Contemporary Literature. **6.15,** Choral Concert: Spring Song (Grell); The Nightingale (Mendelssohn); Liederfrühling (Hegar); Folk Songs: (a) Es Hog ein kleines Waldrögelein, (b) Ich bin Kuckuck (arr. Othegraven), (c) Mein Herz hat sich gesellet (arr. Witzke); Der Greis (Haydn); Gewalt der Liebe (Nägeli); Bohemian Folk Song, The Gosling (arr. Walden); Silesian Folk Song, Bettellente (arr. Wolfrum); Schwefelhölzle (arr. Berger). **6.45,** Finance Talk. **7.15,** The Soldier's Life is a Merry One—Variety Programme. **9.5,** News Bulletin. **9.30,** Concert by the Leipzig Symphony Orchestra, conducted by Paul Schmitz: Symphonic Prologue to a Tragedy (Reger); Serenade, Op. 48 (Frankenstein); Symphony No. 8, in A, Op. 92 (Beethoven).

LINZ.—See **Vienna.**

LJUBLJANA

574.7 metres; 7 kW.—**5.0 to 5.30 p.m.,** Programme in English by the I.B.C.: Light Music: Blaze Away; Trees; Maybe it's the Moon; Titania; Out of the Blue; An old Violin; Pardon me Pretty Baby; My Heart Sings a Broken Melody. **5.30,** Popular Music on Gramophone Records. **6.0,** Russian Lesson. **6.30,** Literary Programme. **7.0,** Concert of Music by Vilhar. **8.15,** Quintet Concert. **9.15,** Time and News.

LWOW

381 metres; 16 kW.—**6.10 p.m.,** Miscellaneous Items. **6.30,** See **Warsaw. 8.25,** Chamber Music Concert by the Conservatoire String Quartet. Quartet, Op. 18, No. 4 (Beethoven); Quartet, Op. 27, in G Minor (Grieg). **9.15,** See **Warsaw. 10.30** (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South-East. **8.45,** Concert, conducted by M. Gaston Billet. Soloists: Mlle. Aliette Alain (Soprano), Mlle. Rosel Brillat (Soprano), and M. Alex Reynaud (Baritone). Part 1: Overture, Les Mousquetaires au Couvent (Varney); Berceuse from Arlequin (D'Ollone); Femme sensible (Lully); Extase (Ganne); Selection from Les cent vierges (Lecocq); Russian Dance (de Taye); Ariette (Schorer); Selection from Die geschiedene Frau (Fall). Part II: L'Education manquée —Operetta in One Act (Chabrier). News after the Programme.

MADRID

ARANJUEZ, EAQ, 30.43 metres; 20 kW.—**10.30 p.m.,** Concert of Popular Music. **10.45,** Radio Chronicle. **11.0,** Concert (contd.). **11.35,** Talk. **11.40,** Light Music. **12.0 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, Literary Talk, and Request Gramophone Records. **8.25,** News Bulletin. **8.30 to 9.30,** Interval. **9.30,** Chimes, Time, and Political Review. **9.45** (approx.), Programme to be announced. **11.45,** News Bulletin. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**4.10 p.m.,** Dramatic Programme. **5.5,** Agricultural Report. **5.10,** Gramophone Records. **5.15,** See **Prague. 5.25,** 'Cello Recital by G. Hahn: Adagio and Allegro from Sonata No. 4 (Boccherini); Sarabande (Corelli); Minuet from the Petite Suite (Debussy). **5.45,** Talk. **6.0,** See **Prague. 9.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**4.30 p.m.,** Extracts from Rigoletto—Opera (Verdi). **5.30,** Symphony Concert, relayed from the Conservatoire. **8.0,** Talk in English: The Work of a Railway Employee.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg and Kaiserslautern, 560 metres,** and **Nürnberg, 239 metres.—4.0 p.m.,** Orchestral Concert, conducted by Fritz Müller-Rehrmann. Soloist: Ernst Konrad Hause (Baritone). Overture, Figaro (Mozart); Selection from Hansel and Gretel (Humperdinck); Elfenreigen (Klose); Four Songs from the Italian Song Book (Wolf); Orchestral Suite No. 2 (Müller-Rehrmann). **5.15,** Talk for the 270th Anniversary of the Birth of August Hermann Francke. **5.35,** Physical Exercise for Women. **5.55,** Time, Weather and Agricultural Notes. **6.5,** Talk: The History of the German Customs Union. **6.25,** Gramophone Concert, Selection from Lilac Time (Schubert-Berté); Selection from Der Rosenkavalier (R. Strauss); Mattinata (Tosti); Waltz, Wo die Zitronen blühn (Joh. Strauss); Song from Gasparone (Millöcker); The Capricious Musical Box (Fresco); Hawaiian Melody (Mandosar); In the Toy Shop (Jessel); La Cinquantaine (Gabriel-Marie); Selection from The Maid of the Black Forest (Jessel); The Match Parade (Wehle); March, Alte Kameraden (Teike). **7.35,** The German Customs-Union—a Radio Picture (Schöningh). **8.30,** Chamber Music by the Studeny Quartet. String Quartet in C Minor, Op. 57 (Scharrer); String Quartet in D, Op. 11 (Tchaikovsky). **9.20,** Time, Weather, News and Sports Notes. **9.45,** Concert from **Stuttgart. 11.0** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 253.2** and **Rjukan, 447.1 metres.—4.30 p.m.,** Violin Recital by M. Birger. **5.0,** French Lesson. **5.30,** Talk for Boys on Aeronautics. **6.0,** Announcements, Weather and News. **6.30,** Scientific Talk: New Discoveries in the North. **7.0,** Time Signal. **7.1,** Dramatic Programme. **8.30,** Agricultural Report. **8.40,** Weather and News. **9.0,** Topical Talk. **9.15,** Concert by the Station Orchestra, conducted by Hugo Kraunn: Potpourri of Waltzes by Strauss (Weber); In the Harbour of Port Said (Armandola); Romance (Rubinstein); Neapolitan Serenade (Sgambati); Ave Maris Stella (Grieg); Selection from The Three Musketeers (Friml); A Night on the Volga (Russo); Marche lorraine (Ganne). **10.0** approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

542 metres; 3 kW.—**7.0 p.m.,** Dopolavoro Notes, Tourist Talk, Agricultural Report and Giornale Radio. **7.20,** Light Music on Gramophone Records. In an interval at **7.30,** Time Signal and Announcements. **8.45,** Concert of Variety Music. Soloists: M. Pollicino (Tenor) and Mlle. Gonzaga (Soprano). Overture, Der Freischütz (Weber); Tenor Solos: (a) Non piu

disperar (de Luca), (b) Rosa mesta (Tronchi); Waltz from Etienne Marcel (Saint-Saëns); Soprano Solos: (a) Waltz, Bella (Pieroni), (b) Aria from Lakmé (Delibes); Talk. Tenor Solos: (a) Song from Act III of I Puritani (Bellini), (b) Song from Act I of La Favorita (Donizetti); Intermezzo from Manon Lescaut (Puccini); Soprano Solos: (a) Ideale (Tosti), (b) Waltz from Act III of Dinorah (Meyerbeer); Overture, Norma (Bellini). After the Concert, Popular Song Recital. 9.55, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.**, Le Journal Parlé. **7.20,** Weather Report. **7.30,** Programme for Young People. **8.5,** News Bulletin. **8.15,** Concert by the Radio Orchestra, conducted by Edouard Flament: Paysages normands (Sporck); Violin Solo: Selection from La Basoche (Messager); Selection from The Barber of Seville (Rossini). **9.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Gramophone Concert of Variety Music. **8.0,** Tourist Reports. **8.5,** Talk on Economics. **8.15,** Interval. **8.30,** Sponsored Concert. **9.0,** Interval. **9.10,** Sponsored Concert. **9.40,** Interval. **9.50,** Variety Music on Gramophone Records. **10.10,** Dance Music by the Lido Orchestra. **11.0,** News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture. **7.45,** Gramophone Records: Selection from Orpheus in the Underworld (Offenbach-Myddleton); Selection from The Cat and the Fiddle (Kern). **8.0,** Press Review and Weather. **12 Noon,** Talk: How to read Molière. **12.15 p.m.,** Concert by the Radio Paris Orchestra: Selection from François les bas bleus (Messager-Bernicat). **12.30,** Organ Recital by G. T. Desserre, relayed from the Gaumont Palace: Overture, Semiramis (Rossini); Whistling Waltz (Reaves); Selection from Le Petit Duc (Lecocq); I love me (Waller). **1.0,** Exchange. News, and Weather. **1.5,** Orchestral Concert (contd.): Melody (Battle); Sentimental Reverie (Barlow); Printania (Berger); Pastoral Introduction (Borchard); Aubépines en fleurs (Brun); Babil d'oiseaux (Sachs); Amoureuse causerie (Delaunay); Spring Song (Mendelssohn); Idyll printanière (Delmas); Le réveil des fleurs (Flament); Pommier fleuris (Ganne); Nuit de printemps (Jumain); Aux premières feuilles (Pesse). In the interval at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.40,** German Lesson. **7.0,** Medical Talk. **7.20,** Concert: In the Garden of Love (Harting): Egyptian Caprice (Seybold); Allegro (Brusselmans); Florentine Serenade (Seybold); Overture, The Loreley (Lincke); Melody (Paderevsky); Persian Suite (Rubinstein). **7.50** (approx.), Commercial Prices and News. **8.0,** Literary Talk: Poems by Jean Richepin. **8.30,** News and Weather. **8.40,** Fashion Review by Mlle. José. **8.45,** Gramophone Records: Second Suite for Small Orchestra (Stravinsky); The Midnight Review (Glinka). **9.0,** Concert by the Lamoureux Concert Society, conducted by Karl Elmendorff, relayed from the Salle Gaveau: Soloist: Marcelle Bunlet (Songs): Overture, Rienzi (Wagner); The Moldau (Smetana); Overture, Tannhäuser (Wagner); Prelude to Act III and Overture to the Mastersingers (Wagner); Siegfried's Rhine Journey and Forest Murmurs from Siegfried (Wagner); Songs: (a) Funeral March, and (b) Finale from The Twilight of the Gods (Wagner).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.,** Work-a-day Thoughts. **9.5,** Business News. **9.15,** Programme to be announced. **9.30,** Weather Report. **9.32,** Market Reports. **9.45,** Blue Ridge Buddies. **9.57,** David Lawrence Dispatch. **10.0,** KDKA Orchestra. **10.15,** Programme to be announced. **10.30,** The Singing Lady. **10.45,** Little Orphan Annie, from **New York. 11.0,** Booth Tarkington's Maude and Cousin Bill, from **New York. 11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.27,** Strange Facts. **11.29,** Temperature Report. **11.30,** KDKA Orchestra. **11.45,** To-day's News by Lowell Thomas, from **New York. 12.0 Midnight,** Amos 'n' Andy, from **New York. 12.15 a.m. (Thursday),** Programme to be announced. **1.0 to 3.15, New York** Relay. **1.0,** Eno Crime Club. **1.30,** Time Signal and Harriett Lee and her Leaders. **1.45,** The Country Doctor. **2.0,** Adventures of Sherlock Holmes. **2.30,** Woodbury Programme with Morton Downey and Donald Novis. **3.0,** D. W. Griffith's Hollywood. **3.15,** Around the Cracker Barrel. **3.30,** Bridge School of the Air by E. Hall Downes. **3.45,** Music Magis, from **New York. 4.0,** Time Signal. **4.1,**

MARCH 22nd WEDNESDAY *continued*

Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.15,** Press Last Minute News Flashes. **4.20,** Smith Ballew and his Orchestra. **4.58,** KDKA Artist Bulletin. **5.0,** College Inn Orchestra, from **New York. 5.30,** Time Signal and Goodnight.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.,** Concert by the Station Orchestra and Karl Hasler. **4.0,** Talk for Mothers. **4.10,** See **Moravska-Ostrava. 5.5,** Agricultural Talk. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission—Talk for Workers. **6.0,** Chimes and News. **6.10,** Talk on the Modern House. **6.25,** Dance Music on Gramophone Records. **6.50,** Concert by the Prague Chamber Choir. Soloist: Prof. Friedrich Wiedemann (Organ). Introductory Talk by Dr. Trolda. **7.20,** The Fantastics—A Comedy in Three Acts (Edmond Rostand); Czech by Adolf Cervinka. In the interval at **8.0,** Time Signal. **9.0,** Time, News, and Sports Notes. **9.15** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.**—**5.0 p.m.** (from **Lausanne**), Programme for Children. **6.0** (from **Geneva**), Weather Forecast, News Bulletin and Announcements. **6.30** (from **Lausanne**), Talk: Poultry Farming. **7.0** (from **Geneva**), Talk on Parsifal—Opera (Wagner). **7.15,** Concert by a String Orchestra, conducted by Robert Echenard. **8.15** (from **Lausanne**), Choral Concert, with Recitations by Mme. Germaine Mattan. **9.0,** News Bulletin and Weather Forecast. **9.10** (from **Geneva**), Talk: The Work of the League of Nations. **9.25** (from **Lausanne**), Dance Music, relayed from the Bel-Air Metropole. **10.0** (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—**8.30 p.m.,** Weather Report. **8.40,** Music Programme and Announcements. **9.0,** Chimes. **9.2,** News Bulletin. **9.30, Reading. 10.0,** Violin Recital by Thorarinn Gudmundsson, followed by Arias and the Brandenburg Concerto (Bach) on Gramophone Records.

RJUKAN.—See **Oslo.**

ROME

Call IRO, 441 metres; 50 kW. Relayed by **Naples, 319 metres;** and **2RO, 25.4 metres.**—**5.45 a.m.,** Gymnastics. **7.15 to 7.30,** Giornale Radio and Announcements. **11.30,** Weather and Light Music on Gramophone Records. **12 Noon,** Time and Announcements. **12.2 to 1.15 p.m.,** Concert of Light Music. In the interval at **12.30,** Giornale Radio and Exchange. **3.45,** Children's Radio Review. **4.10,** Announcements. **4.15,** Exchange, Report of the Royal Geographical Society and Giornale Radio. **4.30 to 5.15,** Concert of Chamber Music. **6.0** (**Naples**), Shipping and Sports Notes. **6.10,** Agricultural and Dopolovoro Notes. **6.20,** Giornale Radio and Light Music on Gramophone Records. **7.0,** Time, Announcements and Gramophone Records (contd.). **7.15,** Medical Talk. **7.30,** Sports Notes and Tourist Report. **7.45,** Relay from a Theatre. In the intervals, News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**7.30 p.m. to 12.15 a.m. (Thursday), New York Relay. 7.30 p.m.,** Westminster Choir. **8.0,** Two Seats in the Balcony. **12 Midnight,** Mischa Weisbord (Violinist). **12.15 a.m.,** Stock Reports. **12.30,** Gold Medal Band. **12.45 to 2.30, New York** Relay. **12.45,** The Goldbergs — Comedy Sketch. **1.0,** Royal Vagabonds. **1.30,** The Shadow—Mystery Drama. **2.0,** General Tire and Rubber Company. **2.30,** Supper Club Orchestra, followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE, 244.1 metres;** and **BERNE, 245.9 metres.**—**11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40** (from **Berne**), Gramophone Records of Cortot, Busch, Casals, Tito Schipa and Richard Strauss. **12.35 p.m.,** Weather and Exchange. **12.40 to 2.30,** Interval. **2.30** (from **Zürich**), Concert by the Small Radio Orchestra. **3.30** (from **Zürich**), Programme for Children. **4.0** (from **Zürich**), Popular Music on Gramophone Records. **4.30,** Weather. **4.35 to 5.30,** Interval. **5.30** (from **Zürich**), Talk on Books. **6.0,** Time, Weather and Market Prices. **6.15** (from **Zürich**), Elementary English Lesson. **6.45** (from **Zürich**), Concert of Music by Arthur Honegger. Walter Frey (Pianoforte), Fritz Reitz ('Cello) and Raffaele Terminiello (Clarinet). **8.30,** Weather and News, followed by Dance Music with Gramophone Selections. **9.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvaal, 542 metres.**—**4.5 p.m.,** Folk Music, relayed from **Karlstad (217 metres). 4.30,** The Practical Corner. **4.45,** Popular Music on Gramophone Records. **5.45,** Technical Talk. **6.30,** Military Band Concert, conducted by Ivar Widner. **7.15,** Weather and News. **7.30,** Talk, relayed from **Göteborg. 8.0,** Pianoforte Recital by Josefa Rosanska. **8.30,** Talk, relayed from **Malmö (231 metres). 9.0,** Modern Dance Music. **9.45,** Weather and News. **10.0** (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.,** Schubert Concert on Gramophone Records. **12.45 p.m.,** News Bulletin. **1.0,** Time Signal. **1.1,** Market Prices. **1.5,** Gramophone Concert of Variety Music. **2.0 to 4.45,** Interval. **4.45,** Talk in German: Electricity. **5.0,** Orchestral Concert, conducted by Roskam: March (Siede); Waltz, Acclamation (Waldteufel); Overture, Le Postillon de Longjumeau (Adam); The Dreary Steppe (Gretchaninov); Dance (Gretchaninov); Selection from La Vivandière (Godard); Three Pieces (Gillet): (a) Loin du Bal, (b) Babillage, (c) La fête du hameau; Byzantine Suite, Illys (Ganne). **6.0,** Variety Concert, relayed from **Lille (265.4 metres). 7.0,** Legal Talk in French: Indian Politics. **7.15,** Light Music on Gramophone Records. **7.30,** Time Signal. **7.31,** News Bulletin. **7.45,** Popular Concert on Gramophone Records. **8.20,** Lottery Results and Announcements. **8.30,** Symphony Concert, relayed from the Palais des Fêtes; The Municipal Orchestra, the Conservatoire Choir, and Soloists; Conductor: Fritz Munch: Cri du Monde (Honegger); Third Symphony (Brahms). **10.30,** Dance Music, relayed from the Savoy. **11.0** (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres; 60 kW.; and **FREIBURG, 570 metres.**—**12.30 p.m.,** Concert from **Langenberg. 1.0,** Musical Programme, arranged by the Post Office. **1.15 to 1.30** (from **Mannheim**), Musical Programme, arranged by the Post Office. **2.30,** Dialogue between Bookseller and Reader in connection with Book-Day. **3.0,** Programme for Children. **4.0,** See **Munich. 5.15,** Time, Weather and Agricultural Notes. **5.25,** Talk: The Army in the Time of the Thirty Years' War. **5.50** (from **Freiburg**), Talk. **6.15,** Time and News. **6.30,** Little Known Europe—Provence—a Programme on Gramophone Records. **7.15** (from **Freiburg**), Die Welt auf dem Monde—Comic Opera in a Prelude and two Acts (Haydn). **8.45** (from **Mannheim**), Else Wagner in a Recital of Palatinate Songs, with Lute accompaniment. Part I, Das Mannheimer Lied (Else Wagner); Von Wein und Frauen (Geiert); Der Bussebär (Adolf Kieser); Im Herbscht (Else Wagner); Part II, Songs (Else Wagner); Seelewanderung (Else Wagner); Part II, Songs (Else Wagner); E. Pälzer Werbeplakat; Mei Herzerweiterung; Der ausgekernte Kerschekuehe; Es Lewerwäsehtl; Es kleene Bärwelche. **9.10,** Time and News. **9.45,** Concert conducted by Harry Risch. Soloist: Käte Mann (Soprano) and Walter Maurer (Tenor). **11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—**6.0 p.m.,** News Bulletin. **6.15,** Airs from Opera: Songs from Rigoletto (Verdi); Si j'étais roi (Adam); Werther (Massenet); The Barber of Seville (Rossini). **6.30,** Instrumental Music: Andante from the Quartet in G Minor (Debussy); Cheritza (Breau); Moment musical (Schubert); Overture, Poet and Peasant (Suppé); Scherzo (Chabrier); Talk, March (Stravinsky). **7.15,** News, Racing Results and Market Prices. **7.25,** Local News. **7.30,** Accordion Solos. **7.45,** Sound Film Music. **8.0,** Orchestral Music. **8.30,** Songs from Operettas: Ciboulette (Hahn); Les Mousquetaires au Couvent (Varney); and Véronique (Messager). **8.45,** Military Music. **9.0,** Concert by the Société La Sirène, conducted by M. Ichac: Light Music in the interval. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Viennese Music. **11.30 to 12 Midnight,** Programme in English by the I.B.C. **11.30,** The Mad Major (Alford); On the Quarter Deck (Alford); The Empire March (Tulip); Old Comrades (Teike); Le rêve passe (Helmer); Marche Lorraine (Ganne); March, King Cotton (Sousa); March, Blaze away (Holzmann). **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Thursday),** Symphonic Music: Danse macabre (Saint-Saëns); Jubel Overture (Brahms); Selection from Schwanda the Piper (Wienberger). **12.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—4.0 to 6.0 p.m., See **Turin. 6.0,** Popular Music on Gramophone Records. **6.20 to 6.35,** See **Turin. 6.35,** Orchestral Music from the Café Dante. **7.0** (approx.), till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.**—**4.0 to 5.0 p.m.,** Soprano and Tenor Song Recital. **5.35,** Giornale Radio, Agricultural, and Dopolavoro Notes. **6.0,** Gramophone Records of Variety Music. **6.20,** Giornale Radio. **6.30,** Time, Announcements, Tourist Report, and Gramophone Records (contd.) **7.0,** Giornale Radio and Weather. **7.15,** Medical Talk. **7.30,** Comedy in Three Acts, followed by Programme of Orchestral Music: Selection from The Caliph of Bagdad (Boieldieu) Selection from Anima allegra (Vittadini); Selection from The Flower of Hawaii (Abraham); Pulcinella (de Nardis); Selection from Napoli canta (de Curtis). **10.0,** Giornale Radio. **10.5,** Dance Music from the Rajola. **10.30** (approx.), Close Down.

VATICAN CITY

19.84 metres (Morning) and **50.26 metres (Evening);** 10 kW.—**10.0 to 10.15 a.m.,** Religious Information in Spanish. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.1 metres.**—**4.0 p.m.,** Concert by Bernard Wolfsthal and his Band: Britannicus-Overture (Scassola); Waltz, Loreley-Rheinklänge (Josef Strauss); Selection from Rigoletto (Verdi); Torch Dance of the Brides of Kashmir (Rubinstein); Dance of the Dervishes (Bendix); Potpourri of Popular Melodies (Geiger); March, Der Sieger (Macho). **5.30,** Medical Talk. **5.55,** Talk for Workers: The Building Trade. **6.20,** Time; Weather and Programme Announcements. **6.30,** Talk: The Empress Maria Theresa and German Dualism. **7.0,** Bunte Stunde—Talk, Songs, Humorous Items, Whistling Solos and Recital on Two Pianofortes. **8.0,** Reading. Saatgang (Friedrich Griese). **8.35,** Music Notes. **8.45,** News, Weather and Announcements. **9.0,** Concert by the Vienna Chamber Orchestra, conducted by Rudolf Pehm: Overture, Djamileh (Bizet); Suite in A (Dvorák); Two Pieces for Flute: (a) Melody from Orpheus and Eurydice (Gluck), (b) Aria and Allegro in Old Style (Pehm); German Dances (Schubert); Am Sonntag Morgen (Kirchberger); Turkish March (Mozart); Dance Suite (Mraczek); Waltz, Abendsterne (Lanner); Three Pieces (Joh. Strauss): (a) Overture, Indigo, (b) Waltz, Wiener Bonbons, (c) Entry March.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Bugle Call from St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Light Music on Gramophone Records. **12.20 p.m.,** Weather Forecast. **12.25 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.30,** Boy Scouts' Report. **2.35,** Programme. **3.0,** Light Music on Gramophone Records. **3.20,** Educational Talk. **3.40,** Talk on the United States. **4.0,** Pianoforte and Violin Recital by I. Paderevsky and M. Ehnan on Gramophone Records. In the interval, Announcements. **4.40,** Talk: Welfare Work among the Young Unemployed of Vienna and Munich. **4.55,** Programme Announcements. **5.0,** Talk. **5.20,** News. **5.25,** Light Music. **6.0,** Miscellaneous Items. **6.20,** Agricultural Report. **6.30,** Recitations. **6.45,** Radio Journal. **7.0,** Welcome Spring! Concert by the Station Orchestra, conducted by S. Nawrot. Soloist: S. Witas (Tenor). Frühlingserwachen (Bach); March, Frühlingseinkunft (Blon); Waltz, O Frühling wie bist du so schön (Lincke); Rustle of Spring (Sinding). Tenor Solos: (a) Song (Maszynski), (b) Serenade (Niewiadomsky); An den Frühling (Grieg); Frühlingsstimmen (Joh. Strauss); Spring Song (Mendelssohn); Entry of the Spring Flowers (Kockert). Tenor Solos: (a) The Violet (Niewiadomsky), (b) Spring (Malinowsky), (c) May Idyll (Kossobudzky); Spring Suite (Nevin-Artok); March, Frühlingskinder (Blankenburg). **8.15,** Sports Notes. **8.20,** Radio Journal. **8.25,** Chamber Music relayed from **Lwów, 381 metres. 9.15,** Topical Talk. **9.30,** Dance Music. **9.40,** Talk in Modern Greek: Joseph Pilsudski. **9.55,** Weather Report and Police Notes. **10.0,** Dance Music. **11.0** (approx.), Close Down.

WILNO

563 metres; 16 kW.—**5.55 p.m.,** Miscellaneous Items. **6.0,** Reading. **6.10,** Miscellaneous Announcements. **6.15,** Theatre Talk. **6.30,** See **Warsaw. 10.5,** Humorous Talk. **10.35,** See **Warsaw.**

ZURICH.—See **Schweizerischer Landessender.**

ATHLONE

Call 2RN (413 metres), 60 kW.; and **CORK, 224.4 metres.—1.30 to 2.0 p.m.,** Time, Weather, Stock Report, Variety Music on Gramophone Records and Grand National Sweep Results. **6.0,** Light Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Popular Music on Gramophone Records. **7.10,** Dublin Cattle Market Report. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** French Lesson. **7.45,** Literary and Dramatic Talk. **8.0,** The Station Orchestra. **8.30,** Soprano Solos by Hilda Dorrian Dawson. **8.45,** Violin Solos by Sydney Rosehill. **9.5,** Variety Programme by the Leinster School of Music. **9.35,** The Station Orchestra. **9.50,** The Green Field—Play by Gabriel Fallon and Company. **10.20,** The Station Orchestra. **10.30,** Time, News, Weather and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations and Educational Talk in Catalan. **8.0,** Light Music on Gramophone Records and News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **9.5,** Concert by the Station Orchestra. **10.0,** La Negra—Comedy in Three Acts (J. F. del Villar). **11.0** (in an interval), News Bulletin. **12 Midnight** (approx.), Close Down.

BARI

370 metres; 20 kW.—**7.0 p.m.,** Agricultural Report, Tourist Talk and Dopolavoro Notes. **7.20,** Giornale Radio and News Bulletin. **7.30,** Time Signal and Announcements. **7.35,** Military Band Concert, conducted by Salvatore Rubino: Fifth Symphony (Beethoven); Selection from Rigoletto (Verdi); Andante and Minuet from the Quartet in D for Strings (Mozart); Spanish Suite in Three Movements, La Feria (Lacome); Waltz, Idillio (Franco Valentini Vista). In the interval, Literary Talk. **9.30,** Light Music on Gramophone Records. **9.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—**4.0 p.m.,** Talk. **5.25,** Time and Programme Announcements. **5.30,** Dialogue in French. **6.0,** Popular Music on Gramophone Records. **6.30,** Recital of Folk Songs. **7.5,** See **Vienna.** **9.0** (approx.), News.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert from **Berlin (Witzleben).** **2.0,** Musical Programme for Children. **2.30,** Weather and Exchange. **2.45,** Reading (Jörk Wickramx). **3.0,** Talk for Women. **3.30,** Concert from **Berlin (Witzleben).** **4.10,** Talk: The Political Struggle against the War Guilt Accusation. **4.30,** Sonata in D Minor for Violin and Pianoforte, Op. 121 (Schumann). **5.0,** Advanced Shorthand Lesson. **5.30,** String Quartet (Rudolf Peterka). **5.55,** Weather and Announcements. **6.0,** Talk: German for Germans. **6.30,** A Poem. **6.35,** Agricultural Talk. **7.0,** Berlin at Work by Night—a Radio Report. **7.40,** Talk on the following Relay. **8.0,** See **Munich.** **8.40,** Hans Voss reads from Edda. **9.10,** Weather, News and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Dances from **Hamburg.** **11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**1.0 p.m.,** Gramophone Concert. **1.55,** Exchange and Agricultural Prices. **2.20,** Talk for Housewives: Protection against Accidents in the House. **2.35,** Concert by the Franz Stepani Orchestra: Waltz, Marienklänge (Jos. Strauss); Selection from Martha (Flotow); The Hermit (Schmalstich); Potpourri, Deutscher Kampf im Lied (Stepani); Badenweiler Marsch (Fürst). **3.15,** Gardening Talk. **3.30,** Max Reger Organ Recital by Walter Drwenski: Sonata in D Minor, Op. 60; Benedictus and Gloria from Op. 59. **4.5,** Pianoforte Recital by Hermann Hoppe: Four Pieces from Op. 14 (Draeseke); Romance, Op. 59, No. 1 (Graener); Three Intermezzos from Op. 77 (Graener). **4.30,** Talk by Hermann Claudius: Examples one should follow in Real Life. **4.50,** Talk for Young People. **5.10,** Hugo Rasch Song Recital by Eva Liebenberg (Contralto): Songs to Words by Wilhelm Busch; Der schöne Sommer ging von hinnen; Ich ging zur Bahn; Ich kam in diese Welt herein; Es flog einmal ein muntres Fliegel; Wenn ich dereinst. **5.30,** Herybert Menzel reads from his own Poems. **5.45,** Magdeburg Programme. **5.55,** The Berlin Station informs its Listeners . . . . **6.0,** Topical Talk. **6.10,** Talk: Should there be a Uniform Armament System for Continental Europe? **6.30,** Concert by the Police Symphony Orchestra, relayed from the Academy of Music; Conductor: Erich Boehlke. **8.15,** Announcements. **8.20,** Sunshine and Shadow—Pictures of the Welfare Work in a Great City. **9.20,** Weather, News, and Sports Notes. **9.30** (approx.), Dance Music by Three Bands, on Gramophone Records. **11.0** (also relayed by **Zeesen** on **31.38 metres**), Repetition of The Call—Radio Picture (Hermann Kasack), arranged by Ottoheinz Jahn, Music by Karl Kriauer.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—**7.30 p.m.,** News and Exchange. **7.40,** Talk for Workers. **7.55,** Lottery Results. **8.0,** Talk on Wines. **8.15,** News and Weather. **8.30,** The Dolls' House—Play in Three Acts (Ibsen).

BRATISLAVA

279 metres; 14 kW.—**5.5 p.m.,** Henri Marteau Recital by G. Artardiev (Violin), B. Beza (Flute), and L. Kratochvilova (Viola). Divertissement for Flute and Violin, Op. 42; Trio for Flute, Violin and Viola, Op. 32. **5.35,** Readings from New Slovak Books. **6.0,** See **Prague.** **6.10,** Gramophone Records of Popular Music. **6.25,** See **Prague.** **9.15,** Light Music on Gramophone Records. **10.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.—12.10 p.m.,** Weather Report. **12.15,** Orchestral Concert, conducted by Hermann Behr: Overture, Orpheus in the Underworld (Offenbach); Waltz from The Rose of Stamboul (Fall); Two Minuets (Boccherini); Quick Polka, Mutig voran (Joh. Strauss). **12.45,** Time, Weather, News, and Exchange. **1.5,** Gramophone Concert in Blue: Rhapsody in Blue (Gershwin); Valse bleue (Margis); Cornflower Song (Mylius-Krüger); Contralto Solo, Das Veilchen (Mozart); By the Blue Hawaiian Waters (Ketelbey); Blues, Blue Night (Rollins); Blau, blau, himmelblau—Duet from Frühlingsstürme (Weinberger); The Blue Danube (Joh. Strauss). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Market Prices. **2.40,** Talk: Suggestions for Spring Rambles. **2.50,** Review of Books. **3.10,** Concert, conducted by Franz Marszalek: Potpourri, Memories of Potsdam (Noack-Kirsch); Tango Serenade, Bolivia (Castaldo); Potpourri of Student Songs and Marches (Thiele); Paraphrase on Tom the Rhymer (Homann-Webau); Valse Boston, Singende Wasser (Schmitt); Intermezzo, The Old Musical Clock (Humphries); Selection from Hotel Stadt Lemberg (Gilbert). **4.0,** Wurst wider Wurst — Radio Play for Children (Lisa Tetzner). **4.30,** Market Prices. **4.35,** Chamber Music: Tallahasse—Suite for Violin and Pianoforte (Cyril Scott); Three Movements from the Suite to Pictures by Carl Spitzweg, Op. 84 (Walter Niemann). **4.55,** Talk: Old and New Violins. **5.20,** Topical Talk. **5.35,** Talk: The Position of Employees' Cases of Bankruptcy. **6.0,** Talk: School Conditions among the Expatriated Germans of the East European States. **6.30,** Weather Report. **6.35,** Concert, conducted by Franz Marszalek: Overture, Abu Hassan (Weber); Selection from Tiefland (d'Albert); Valse triste (Sibelius); Ballet Suite, Faun und Elfenreigen (Karl); Violin Solo: Schön Rosmarin (Kreisler); Potpourri of Marching Songs, Jung-Deutschland (Weninger). **7.30,** From the Gramophone Archives of the Breslau Station. **8.30,** News Bulletin. **8.40,** Songs by the Usinger Quartet. **9.0,** Time and News. **9.20,** Talk in Esperanto. **9.30,** Talk: Spring in the Bartsch Valley. **9.50** (approx.), Close Down.

BRNO

342 metres; 35 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by J. Janota. Soloist: Oldrich Slavicek (Flute). Overture, Iphigenia in Aulis (Gluck); Suite in B Minor for Flute and String Orchestra (Bach); Symphony No. 8 in B Minor—the Unfinished (Schubert). **4.10,** News for Young People. **4.20,** Programme for Children. **4.50,** Talk on Sociology. **5.0,** Literary Review. **5.15,** See **Prague.** **5.25,** German Transmission: News and Recital of Songs by Silesian Composers. **6.25,** Harpsichord Recital. **6.40,** See **Prague.** **8.0,** Programme of Sailors' Songs. **8.20,** Evening and Night—Concert by the Station Orchestra, conducted by Bakala. Soloists: A. Korecek (Songs) and E. Walter (Recitations). **9.0,** See **Prague.** **9.15,** Light Music on Gramophone Records.

BRUSSELS (No. 1)

I.N.R.; 509 metres; 15 kW.—**12 Noon,** Gramophone Concert of Light Music. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by Pierre Leemans: Pablo—Paso flamenco (Rossi); Japanese Suite (Yoshitomo); Serenade, The Stolen Kiss (Dearly-Leslie); Suppé Potpourri (Michaelov); Gavotte for 'Cello (Popper); Liebste, glaub' an mich! from Schön ist die Welt (Lehár); Waltz, Dolly (Langlois); In der kleinen Bar, from Schön ist die Welt (Lehár). **5.0,** Concert by the Symphony Orchestra, conducted by Jean Kumps: Symphony in E Flat (Mozart); Overture, Figaro (Mozart). **5.30,** Programme for Children. **6.0,** Talk: The Life of a Child. **6.15,** Gramophone Concert, Chanson du pêcheur (Fauré); Ich hab' im Traum geweint (Schumann); Clair de lune (Fauré); Scherzo in E Minor (Mendelssohn); Allegro appassionato (Saint-Saëns). **6.30,** Concert by the Little Station Orchestra, conducted by P. Leemans: Overture, A Night in May (Rimsky-Korsakov); Le colibri (Chausson); Elegy, Le lac d'amour (La Gye); Spanish Caprice (Granados); Sicilienne, for Flute (Gaubert); Grotesque Dance (Schmitt); La jota aragonesa (Saint-Saëns). **7.15,** Talk for Workers. **7.30,** Sports Review. **8.0,** Concert by the Little Station Orchestra, conducted by Pierre Leemans: Finlandia (Sibelius); Prelude to La damoiselle élue (Debussy); Suite for Violin (Pergolesi-Stravinsky); Adagio for Clarinet and String Quintet (Wagner); Pourrée fantasque (Chabrier). **8.45,** Talk by M. Collard. **9.0,** Concert by the Symphony Orchestra, conducted by Jean Kumps: Overture, Der Freischütz (Weber); Allegro from the Italian Symphony (Mendelssohn); Interlude for Viola da Gamba (Mendelssohn); Overture, Le Carnaval romain (Berlioz). **10.0,** Le Journal Parlé. **10.10,** Gramophone Concert. Part I: Old and Modern Dance Music. Part II: Three Symphonic Sketches, La Mer (Debussy).

BRUSSELS (No. 2)

N.I.R.; 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Concert by the Little Station Orchestra, conducted by P. Leemans: Waltz, Dorfschwalben aus Oesterreich (Jos. Strauss); Two Eastern Dances (Heykens); Potpourri, Zoo singt Holland (Sluyter); Negro Song (Clutsam); Bolero for Pianoforte (Chopin); Waltz, Les Patineurs (Waldteufel). **1.0 p.m.,** Le Journal Parlé. **1.10,** Sacred Music, on Gramophone Records: Die Ehre Gottes in der Natur (Beethoven); Ad nos ad salutarem (Liszt); Tantum ergo (de Vittoria); I call upon thee, Jesus (Bach); The Lord is King (Brüning). **1.30,** Gramophone Records: Iberia (Albéniz); Ballet Music from Namouna (Lalo); Norwegian Rhapsody (Lalo). **5.0,** Concert by the Radio Orchestra, conducted by Franz André: Potpourri, Hallo 1930 (Borchert); Overture, Morning, Noon and Night (Suppé); Waltz, Dolores (Waldteufel); Waltz, Künstlerleben (Joh. Strauss); Heinzelmännchens Wachtparade (Noack). **5.45,** Programme for Children. **6.30,** Catholic Programme for Children. **7.15,** Talk. **7.30,** Programme for Women. **8.0,** Concert relayed from the Institut de Notre Dame aux Epines, **Eecloo:** Prelude and Fugue in C Minor (Bach); Piece (Vondel); Allegro from the Sonata in C, Op. 2, No. 2 (Beethoven); Nieuwe Lente (Meulemans); Etude in C, Op. 10, No. 7 (Chopin); Magnificat (Verhoeven); Bede (Van Scheltema); Godelieve (Tinel); Près de la source (Moret); Five Melodies (Gezelle-Mortelmans). **9.15,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Der Freischütz (Weber); Suite enfantine (Pierné); Beghine in Chiesa (Signorini); Roumanian Dance No. 3 from the Sonatina (Negrea); Jewish March (Jora); Scènes Napolitaines (Massenet). **9.55,** Evening Prayer. **10.0,** Le Journal Parlé. **10.10,** Sound Film Music on Gramophone Records. **11.0** (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—**4.0 p.m.,** Light Music and Roumanian Music by the Dinico Orchestra. **5.0,** News and Time Signal. **5.25,** Light Music (contd.). **6.0,** Talk: Roumanian Poetry. **6.40,** Manon Lescaut—Opera (Puccini), on Gramophone Records. In the intervals, News.

BUDAPEST

550 metres; 18.5 kW.—Programme also relayed on **840 metres** from **6.30 p.m.** till Close Down.—**6.0 p.m.,** Guitar Recital. **6.30,** Talk. **7.5,** Programme from **Vienna.** **9.0,** News Bulletin. **9.15** (approx.), Cigány Concert from the Hotel Dunapalota. **10.15,** Dance Music from the Hotel Dunapalota.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Time Signal and Chimes from the Town Hall. **11.2,** Concert by the Max Skalka String Ensemble, relayed from the Hotel d'Angleterre. **1.0 to 2.0,** Interval. **2.0,** Pianoforte Recital by Esther Wagning: Nocturne in F Sharp, Op. 15, No. 2 (Chopin); Novelette in E (Schumann); Aufschwung (Schumann); Waltz, Frühlingsstimmen (Joh. Strauss-Grünfeld). **2.20,** Concert by the Teddy Petersen Orchestra, relayed from the Wivex Restaurant. **4.0,** Programme for Boys. **4.40,** Exchange and Fish Market Prices. **4.50,** Talk: Herrings and the Herring Fishery. **5.20,** English Lesson. **5.50,** Weather. **6.0,** News. **6.15,** Time Signal. **6.16,** Talk: The Protestant Religion in Germany. **6.45,** Danish Lesson. **7.10,** Twenty-fourth Concert from the State Broadcasting Building; The Radio Symphony Orchestra, conducted by Erich Kleiber; Soloists: Marguerite Perras (Songs); Overture, Figaro (Mozart); Aria from The Huguenots (Meyerbeer); Symphony in E Minor, No. 5, Op. 95, from From the New World (Dvořák); Overture, Polka and Fugue from Schwanda, the Piper (Weinberger); Waltz, Tales from the Vienna Woods (Joh. Strauss); Waltz from Der Rosenkavalier (R. Strauss). **9.15,** News. **9.30,** Readings. **9.50,** Dance Music by the Otto Lington Band, relayed from the Ritz Restaurant. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**6.0 to 7.0 p.m.,** Programme in English by the I.B.C.: C. Danvers Walker, B. McNabb and F. Lamping announcing. **6.0,** Light Orchestral Concert for Brighton listeners: Waltz, The Blue Danube (Joh.

THURSDAY

MARCH THE TWENTY-THIRD

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL Mr. J. Gielgud: "Macbeth from the Actor's Point of View." "Three Soldiers," a play by L. du Garde Peach. Mr. Vernon Bartlett: "Leaders in Other Lands."

LONDON REGIONAL "Jubilation of Fifty Years of Boyhood." Hallé Pensions Fund concert.

MIDLAND REGIONAL Concert from Queen's College, Birmingham. Light musical programme.

NORTH REGIONAL Hallé Pensions Fund concert from Manchester.

WEST REGIONAL Concert from New Siloh Chapel, Landore, Swansea.

SCOTTISH REGIONAL "Dr. Johnson's Secret," a romantick play by Moray McLaren. Reid Orchestral concert.

BELFAST Vaudeville programme.

ABROAD

BARI 7.35 p.m. Military Band concert.

BERO-MUNSTER 8.25 p.m. Relay of "Parsifal" (Wagner), from Geneva.

BRUSSELS (No. 1) 9 p.m. The Symphony Orchestra, conducted by J. Kumps.

BRUSSELS (No. 2) 8 p.m. Concert from the Institut de Notre Dame aux Epines.

COPENHAGEN 7.10 p.m. The Radio Symphony Orchestra.

HUIZEN 9.25 p.m. Concert by the Joseph Haydn Orchestra, from Amsterdam.

RADIO-PARIS 8 p.m. Opera: "Manon" (Massenet), on gramophone records.

ROME 7.45 p.m. Symphony concert, conducted by R. Santarelli.

TOULOUSE 8.45 p.m. Extract from opera: "Thais," by Massenet.

Strauss); The Wedding of the Rose (Jessel); Bells across the Meadow (Ketelbey); In Pierrette's Garden (Brookes); Serenata (Moszkovsky); Devotion (Ketelbey); Columbine (Garland); Moonlight on the Alster (Fetras). **6.30**, Concert for Hove listeners: The Future Mrs. 'Awkins (Chevalier); Just a Dancing Sweetheart (Tobias); My Old Dutch (Chevalier); My Old Irish Mother (O'Donnell); Life (Sarony); Lily of Laguna (Stuart); Poor Kid (Gilbert); Little Dolly Daydream (Stuart). **7.0**, Programme in French. **10.0 p.m.** till Close Down, Programme in English by the I.B.C. **10.0**, Dance Music: For the Love of Mike; Come and have a Cuddle on the Common; This is the Day of Days; On a Cold and Frosty Morning; Honeymoon Lane; Speedboat Bill; Just once for all Time; The Pagan Serenade; Hold my Hand; Roll on Mississippi, roll On; I've got a Feeling; The Lights of Paris; Selection, Miracle Melodies; The same as we used to do; Blaze Away. **11.0**, Orchestral Concert: First Waltz Potpourri (Robrecht); Dancing Doll (Poldini); The Rose-Beetle goes a-wooing (Armandola); Demande et réponse (Coleridge-Taylor); On wings of Song (Mendelssohn); Siciliana Serenata (Schmalstich); Poème (Fibich). **11.30**, Song Recital: Orchestra: What's Next? (arr. Finck); Songs: (a) Hoein' (Richards), (b) The Village Blacksmith (Weiss), (c) I'm a Roamer (Mendelssohn), (d) Leanin' (Sterndale Bennet), (e) The Windmill (Nelson), (f) The Company Sergeant-Major (Sanderson). **12 Midnight**, Variety Programme: Orchestra: Old Timers (arr. Griffiths); Harmonica Duet: Polly (Zamecnik); Sketch, Corporal Hoskins; Song: Cooking Breakfast for the one I Love; Steel Guitar Solo: Dear old Pal of Mine (Robe); Song: When a Woman Loves a Man. **12.30 a.m. (Friday)**, Popular Songs: I'm Walking in the Sun; Lovin' you the Way I do; Overnight; More than you Know; They'll all be There but Me; Back to Gay Paree; You'll be mine in Apple Blossom Time; We're Uncomfortable. **1.0**, Organ Recital: The Match Parade (Wehle); Home (Steeden); The White Dove (Grey-Lehar); Trees (Rasbach); On Wings of Song (Mendelssohn); There's Nothing New in Love (Maclean); Roses of Picardy (Haydn Wood); The Butterfly Waltz (Ralton). **1.30**, Popular Songs: Could I be Happy? (Donaldson); Got the Bench (Donaldson); If the World belonged to Me; You Didn't have to tell Me (Donaldson); Fanny the Fairy Queen (Hamilton); Please Don't Talk about Me; You forgot your Gloves (Hamilton); Walking my Baby back Home. **2.0**, Light Music: Just hummin' Along; What makes you so Adorable?; The King was in the Counting-House; Don't tell a Soul; When the Rest of the Crowd goes Home; Doch Caroline; Hummin' to Myself; Sing Brothers; Long Ago; Night shall be Filled with Music; Marta; Looking on the Bright Side; Shadows on the Window; How are You? **2.57**, I.B.C. Good-night Melody. **3.0**, Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW; **CASSEL, 245.9 metres**; and **TRIER, 259.3 metres.—2.30 p.m.**, See **Stuttgart.** **3.50**, Economic Notes. **4.0**, See **Munich.** **5.15**, Economic Notes. **5.25**, Discussion between Pastor René Wallau and Dr. Wilhelm Michel: Protestant Writings of Today. **5.50**, Talk: State Subsidies for Repairing House Property. **6.15**, Time, Programme Announcements, Weather and Economic Notes. **6.30 to 9.10**, See **Stuttgart.** **9.10**, Time, News, Weather and Sports Notes. **9.30** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), 372 metres; 1.5 kW. Relayed by **Bremen, 269.8 metres**; **Flensburg, 227.4 metres**; **Hanover, 566 metres**, and **Kiel, 232.2 metres.—4.30 p.m.**, Talk: From the Pacific Ocean to Amazonas. **4.55**, Heinrich Bredow Programme, on the Occasion of the Poet's Birthday: Würdigung (Janssen); Two Poems: (a) Gebet, (b) An den Schmerz; Two Songs (Lorenz): (a) Das Auge der Liebe, (b) Hingabe; Der Flieder blüht; Huldigung (Jacobs-Pracht); Two Poems from Die Kette, a Cycle of the Months: (a) Februar, (b) März; Lied des Dichters (Germer); Ein reizender Abend; Two Songs (Erdlen): (a) Das Stelldichein, (b) Christel. **5.25**, Review of Books on the English and French Revolutions. **5.55**, Exchange. **6.0**, Talk: The Woman as a Welfare Worker. **6.25**, Weather. **6.30** (from **Bremen**), Beethoven Pianoforte Recital by Ella Thies: Seven Bagatelles, Op. 33 (Beethoven); Eleven New Bagatelles, Op. 119 (Beethoven). **7.0**, The Other Kleist—Radio Sequence (Alfred Mühr). **8.0**, See **Munich.** **8.40**, Reading: Der Feld der Ehre (Walther G. Khcke). **9.0**, Time, Weather, News, Sports and Police Notes. **9.20**, Topical Talk. **9.30**, Concert of Dances by the Station Chamber Orchestra, conducted by Gerhard Maass. In an interval at **10.20**, Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW.; and **DANZIG, 453.2 metres.—12.5 p.m.**, Popular Music on Gramophone Records. In the interval at **12.20**, News. **1.30 to 2.0**, Interval. **2.0**, Agricultural Prices and Exchange Rates. **2.30** (from **Danzig**), Talk: Chemistry in the Household. **3.0**, Talk: Opportunities for the German Engineer Abroad. **3.30** (from **Danzig**), Concert by the Danzig Municipal Orchestra, conducted by Otto Selberg. Overture, The Siege of Corinth (Rossini); Barcarolle from The Seasons (Tchaikovsky); Valse triste from Kuolema (Tärnfelt-Sibelius); Swedish Wedding March (Södermann); Serenade (Moszkovsky); Prelude to Act Five of The Sunken Bell (Zöllner); Symphonic Poem, The Pied Piper of Hamelin (Geisler); Prelude and Serenade from The Snow Man (Korngold); Schallwellen-Walzer (Joh. Strauss); Potpourri, Round the World (Yoshitomo); Deutscher Reitermarsch (Krüger). **4.50**, Medical Talk. **5.15**, Agricultural Prices. **5.20**, Ice Report. **5.30**, Agricultural Talk. **6.0** (from **Danzig**), Recital of Old Dutch Peasant Songs and Contredanses by Henry Prins (Violin) and Ella Mertins (Pianoforte). **6.30**, English Lesson for Beginners. **6.55**, Weather and News. **7.0**, Dance Music by the Small Station Orchestra, conducted by Eugen Wilcken, and the Ednur Runde Band. **8.30**, News. **8.40**, Talk, with Gramophone Illustrations: Haydn's Spieluhr. **9.15**, Weather, News and Sports Notes.

HILVERSUM

Announced **HUIZEN, 296.1 metres**; 20 kW. (7 kW. up to **4.40 p.m.**).—**11.55 a.m. to 1.40 p.m.**, Programme of the Catholic Radio Society (K.R.O.). **11.55**, Orchestral Concert, conducted by J. Gerritsen. Per aspera ad astra (Urbach); Overture, The Black Domino (Auber); Waltz from Die ideale Gattin (Lehár); Selection from Benvenuto Cellini (Diaz); Extract from the Emperor Quartet (Haydn); Gramophone Records; Heil Europa (v. Blon); Hungarian Comedy Overture (Kéler-Béla); Pomona (Waldteufel); Sonnets (de Taye); Silver Cloud (Ketelbey); Sang und Klang aus dem Osten (Eberle); Selection from Boccaccio (Suppé). **1.40** till Close Down, Programme of the Christian Radio Society (N.C.R.V.). **1.40**, Lesson in Handicrafts. **2.40**, Programme for Women. **3.10 to 3.40**, Interval. **3.40**, Bible Reading and Song and Organ Recital by Mlle. de Jager and M. Gorter. **4.40**, Song Recital by M. Willem Snoeks (Tenor). **5.25**, Handwork Lesson for Young People. **5.55**, Talk. **6.25**, Dressmaking Lesson. **6.40**, Press Review. **7.10**, Police Notes. **7.25**, Religious News. **7.40**, Variety Music on Gramophone Records. **8.10**, Talk: Leo Tolstoï. **8.40**, Light Music on Gramophone Records. **8.55**, Talk on Leo Tolstoï (contd.). **9.25**, Concert by the Joseph Haydn Orchestra, relayed from **Amsterdam.** Conductor: D. H. P. Kiekens. Coronation March (Meyerbeer); Song (Haydn); Overture, Coci fan tutte (Mozart); Adagio (Beethoven); Two Airs from Rosa munde (Schubert); Scandinavian Suite (Juel-Frederiksen); Wedgwood Blue (Ketelbey); Morris Dance (German); March (Holzmann). In the interval at **10.0**, News Bulletin. **10.40**, Variety Music on Gramophone Records. **11.10** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres**; 8.5 kW. Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).—**11.40 a.m.**, Concert by the Wireless Orchestra conducted by Nico Treep; Soloist: Gino Balma (Tenor): March, Blaze Away (Holzmann); Overture, The Italian Girl in Algiers (Rossini); March of the Dwarfs (Moszkovski); Waltz, Brune onx blonde (Waldteufel); Songs: (a) Elfengeflüster (Rhode), (b) The Happy Frog (Hauf), (c) Minuet (Boëllmann), (d) Clair de lune (Ketelbey); Selection from Samson and Delilah (Saint-Saëns); Entry March of the Boyards (Halvorsen); Songs: Selection from La Fille de Madame Angot (Lecocq), Monte Christo (Kotlar); Two Pieces (Fetras): (a) Clog Dance, (b) Künstlerlaune; The Juggler (Rosey). **1.55 to 2.10 p.m.**, Interval. **2.10**, Variety Music on Gramophone Records. **2.40**, Dressmaking Lesson. **3.25**, Gramophone Records (contd.). **3.40**, Talk. **4.10**, Pianoforte Recital by Willem Zonderland. **4.40**, Programme for Children. **5.10**, Concert by the Wireless Orchestra conducted by Nico Treep: Smoky mokes (Holzmann); Ballet russe (Luigini); Dream Waltz (Millöcker); Melody (Burgess); The Oasis (Wismar); Was Blumen träumen (Translateur); Serenade (Heykens); Selection from Countess Maritza (Kálmán). **6.10**, Talk on Sport. **6.40**, Concert by the Wireless Orchestra conducted by Nico Treep: Overture to a Comedy (Keler-Bela); Selection from Das süsse Mädel (Reinhardt); Meditation from Thaïs (Massenet); March Treueschwur (Rust). **7.10**, English Lesson. **7.40**, Time Signal and News. **7.45**, Gramophone Records of Light Music. **7.55**, Concert by the Wireless Orchestra conducted by Pierre Monteux; Soloist: Charles Panzéra (Tenor): First Item to be announced; Invocation and Hymn to the Sun from Les Indes Galantes (Rameau); Italian Serenade (Wolf); Les prières (Caplet); Gramophone Records of Variety Music. **9.40**, Concert by Kovacs Lajos and his Orchestra, with Interlude by the Harmony Kings, relayed from the Tivoli, Utrecht. **10.40**, News Bulletin. **10.50**, Gramophone Records of Variety Music. **11.40** (approx), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.0 p.m.**, Sports Notes. **6.15**, Announcements and Gramophone Records. **6.25**, Announcements for Boy Scouts. **6.30 to 9.35**, See **Warsaw.** **9.35**, Dance Music, relayed from the Café Monopol. Conductor: Sigismond Schatz.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres, 40 kW.; and **HELSINKI, 368.1 metres.—6.5 p.m.**, 'Cello Recital. **6.30**, Recitations. **6.50**, Song Recital by Esteri Parviainen. **7.10**, Gramophone Records of Popular Music. **7.45**, News in Finnish and Swedish. **8.20**, Concert from **Copenhagen.**

LANGENBERG

473 metres; 60 kW.—**12 Noon**, Concert conducted by Wolf: Overture to an Italian Comedy (Keler-Bela); Selection from Fra Diavolo (Auber); Selection from Coppélia (Delibes); Petite Suite de Concert (Coleridge-Taylor); Waltz, Donausagen (Fucik); Selection from The Land of Smiles (Lehár); Westfalenmarsch (Blankenburg). In the Interval at **1.0 p.m.**, News. **1.30**, Sponsored Programme with Gramophone Records. **2.30**, Exchange and Time Signal. **2.50**, Programme for Children. **3.20**, Notes on the Broadcasts for Schools. **3.35**, Talk: Educational Leaders of To-day. **4.0**, Concert from Munich. **5.20**, French Lesson. **5.45**, Weather, Time, Exchange, and Sports Notes. **6.0**, Talk: Crises in the history of Art. **6.20**, Talk: The German Catholic Women's Movement. **6.30**, Review of World Economics 1932. **6.55**, First General News. **7.0**, The World on Gramophone Records—On an Estancia in Argentina. **7.30**, Gramophone Concert of Popular Music. **8.20**, See **Berlin (Witzleben).** **9.25**, News and Sports Notes. **9.45**, Songs and Poems. **9.50**, Serenade conducted by Wolf. **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN, 319 metres.—11.0 a.m.**, Mozart Opera Music on Gramophone Records. **12.15 p.m.**, Concert of Waltzes and Marches on Gramophone Records. Exchange Quotations after the Concert. **1.0**, Film Review. **1.30**, Talk for the Unemployed. **2.0**, Reading: Affchen Schnuti (Grete Köster). **2.35**, Exchange and Market Prices. **3.0**, Concert by the Leipzig Symphony Orchestra, conducted by Willy Steffen: Comedy Overture (Reznicek); Italian Sketches (Beilschmidt); Festival Overture (Meyer-Ambros); Nepomuk Suite, Op. 49 (Moellendorf); Carnival in Paris, Op. 9 (Svendsen); Parade March (Richard Strauss); Serenade for Strings (Handke). **4.30**, Weather and Time. **4.50**, Exchange Quotations. **5.0**, Talk on First Aid in Car Accidents. **5.15**, Notes for Taypayers. **5.30**, Spanish Lesson. **5.50**, Programme Announcements. **6.0**, Talk: Social Insurance. **6.30**, Rudolf Jeremias Kreutz reads from his own Works. **7.5**, See **Vienna.** **8.45**, Topical Review. **9.5**, News. **9.20** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

574.7 metres; 7 kW.—**5.30 p.m.**, Italian Lesson. **6.0**, Talk on Economics. **6.30**, Light Music on Gramophone Records. **7.0**, Missa Solemnis (Foerster)—Oratorio for Choir and Orchestra, relayed from a Church. **9.0**, Time, News, and Light Music.

LWOW

381 metres; 16 kW.—**6.15 p.m.**, Miscellaneous Items. **6.30**, See **Warsaw.** **7.5**, See **Vienna.** **8.0**, See **Warsaw.** **8.15**, See **Vienna.** **8.45**, See **Warsaw.** **10.30** (approx.), Close Down.

MADRID

ARANJUEZ (EAQ); 30.43 metres; 20 kW.—**10.30** till Close Down, Programme arranged by the Spanish-American Radio Society. Details to be announced. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—**7.0 p.m.**, Chimes, Exchange Quotations, Programme for Children, and Request Gramophone Records. **8.15**, News Bulletin and Political Review. **8.30 to 9.0**, Interval. **9.0**, Linguaphone English Lesson. **9.30**, Chimes, Time, and Political Review. **9.45** (approx.), Confessions before the Microphone, by M. Sanchez de Palacios, with Maria Badia, Estrella Rivera, Arregui, Marcen, and Moreno Torroba, followed by Band Concert relayed from the Hotel Nacional. **11.45**, News. **12 Midnight**, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 **kW.—5.30 p.m.**, German Transmission—Discussion: Can Wireless replace the Newspaper? **6.0**, See **Prague.** **8.0**, Orchestral Concert, conducted by J. Plichta. **9.0**, See **Prague.** **9.15**, Light Music on Gramophone Records. **10.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**4.30 p.m.**, Radio Scenes with Music. **6.30**, Concert, relayed from the Conservatorie. **8.0**, Review of the Week and Answers to Correspondents in French.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres**, and **Nürnberg, 239 metres.—4.0 p.m.**, Concert, conducted by Erich Kloss. Overture, Die Matrosen (Flotow); Pictures from an Exhibition (Mussorgsky); Fantasia, Ein Denkmal für Franz Liszt (Urbach); Lullaby (Moszkovsky); Ballet Music from Ritter Pasman (Joh. Strauss); Rustle of Spring (Sinding); Waltz from the Serenade (Volkmann); Heroischer Marsch (Schubert). **5.15**, Talk on Apprentices. **5.35**, Agricultural Talk. **5.55**, Time, Weather and Agricultural Report. **6.5**, Talk: A Voyage on a Sailing Ship. **6.25**, Concert by a Police Band, conducted by Max Windisch. March, Mit Eichenlaub und Schwertern (v. Blon); Overture on a Thuringian Folk Song (Lassen); Military Marches (Kaiser); Potpourri of Soldier Songs, 1914-18 (Reeg); Bavarian Tattoo. **7.35**, La Boîte à Joujoux, Suite for Pianoforte (Debussy), by Karl Weiler, with Verse by P. P. Althaus. **8.0**, Symphony in C Sharp Minor, Op. 36a (Pfitzner), by the Munich Philharmonic Orchestra, conducted by the Composer, relayed from the Tonhalle. **8.40**, Talk: Casting Horoscopes. **9.0**, Soprano and Tenor Duets by Lucie Hartmann and André Kreuchauff. Selig wir from Acis und Galatea (Händel); Two Duets (Schubert): (a) Nur wer die Sehnsucht kennt, (b) Licht und Liebe; Two Duets (Schumann): (a) Er und sie, (b) Die tausend Grüsze. **9.20**, Time, Weather, News and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 355.8 metres**; **Hamar, 574.7 metres**; **Notodden, 447.1 metres**; **Porsgrund, 453.2 metres**; and **Rjukan, 447.1 metres.—4.0 p.m.**, Concert by the Station Orchestra, conducted by Hugo Kramm: Overture, Queen for a Day (Adam); Selection from Cavalleria Rusticana (Mascagni); La lettre de Manon (Gillet); Solveig's Song (Grieg); Norwegian Dance (Grieg); Spring Song (Mendelssohn); A Sunny Day in the Fjord (Reidarson); Waltz, Rendez-vous (Waldteufel); March (Mascagni). **5.0**, German Lesson. **5.30**, Divine Service, relayed from **Trondheim (495.8 metres).** **6.0**, Announcements, Weather, and News. **6.30**, Concert of Light Music. **7.0**, Time Signal. **7.1**, Talk on Poultry Keeping. **7.30**, Sacred Concert, relayed from the Bragernes Church, Drammen; Mlle. Gunvor Mjelva (Soprano) and Mr. Conrad Barden (Organ). **8.40**, Weather and News. **9.0**, Topical Talk. **9.15**, Talk. **9.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

542 metres; 3 kW.—**7.0 p.m.**, Dopolavoro Notes, Agricultural Report and Giornale Radio. **7.20**, Popular Music on Gramophone Records. In an interval at **7.30**, Time Signal and Announcements. **7.45**, Concert of Operetta Music: Selection from (a) La Fille de Madame Angot (Lecocq), (b) Frasquita (Lehár). **9.30**, E Concabella perdette la sua pace—Comedy in One Act (Franco Caraci). **10.0**, Concert of Operetta Music (contd.): Extracts from (a) Ave Maria (Bettinelli), (b) The Bayadere (Kálmán). **9.55**, News Bulletin.

PARIS

EIFFEL TOWER; Call FLE; 1,445.7 metres; 13 kW; Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.**, Le Journal Parlé,

7.20, Weather Report. 7.30, Gramophone Concert: Selection from Martha (Flotow); The Chocolate Soldier (O. Straus); The Merry Widow (Lehár); Le grand Mogol (Audran); The Czarevitch (Lehár); White Horse Inn (Stolz-Benatzky); La Vie Parisienne (Offenbach); La Périchole (Offenbach); La Fille de Madame Angot (Lecocq); Parade de la mère l'Oie (Bréau); and Coup de roulis (Messager); Humorous Monologues (Marsanche): (a) Une visite instructive, (b) En dernière heure; Kasbek (Campli); Schatzwalzer (Joh. Strauss); The Wedding of the Winds (Hall); Baedo (Caro); Waltz, Paulette (Cartes); Terra Hispana (Sentis); Viennese Waltz Potpourri (Robrecht). 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN; 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. 7.0, Programme for Children. 7.30, Talk in Esperanto. 7.40, Popular Music on Gramophone Records. 8.0, Agricultural Talk. 8.15, Interval. 8.30, Nos vingt ans—Play in Four Acts (Edmond Guiraud). 10.20, News.

PARIS

RADIO PARIS; Call CFR; 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Gramophone Records: Interlude from Act I of Pelléas et Mélisande (Debussy); Sarabande (Ducasse). 8.0, News and Weather. **12 Noon,** Protestant Address. **12.30 p.m.,** Orchestral Concert: Album for the Young (Schumann); Histoires (Ibert); Music for Guignol (Marie). 1.5, Violin Recital by Denise Levi. 1.30, Exchange. 1.35, Orchestral Concert (contd.): Selection from Robert the Pirate (Romberg); The Man I love, from Tip-Toes (Gershwin); Air from Frederica (Lehár); Selection from Phi-Phi (Christiné). 2.0, Exchange. 3.45, Exchange and Market Prices. 5.45, Agricultural Notes. 6.0, Religious Address. 7.0, Radio Dialogue. 7.20, Orchestral Concert: Russian Dance (Moszkowsky); Chanson ecossaise (Ladmirault); Fragments poétiques (Godard). 7.45, Commercial Prices, News and Review of the German Press. 8.0, Manon—Opera in Five Acts (Massenet), on Gramophone Records. In the intevals at 8.30, News, Weather and Sports Notes, at 8.40, Review by Dominique Bonnaud, and at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.,** Work-a-day Thoughts. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather Report. 9.32, Market Reports. 9.45, Blue Ridge Buddies. 9.57, David Lawrence Dispatch. 10.0, Programme to be announced. **10.15 to 11.15,** New York Relay. 10.15, The Adventures of Dr. Doolittle. 10.30, The Singing Lady. 10.45, Little Orphan Annie. 11.0, Our Daily Food—George Rector's Cooking School. 11.15, Time Signal. 11.16, Weather Report. 11.17, Teaberry Sport Review. 11.22, Press News Reeler. 11.27, Strange Facts. 11.29, Temperature Report. 11.30, KDKA Orchestra. 11.45, To-day's News, by Lowell Thomas, from **New York.** 12.0 **midnight,** Pepsodent Amos 'n' Andy, from **New York.** **12.15 a.m.** (Friday), Programme to be announced. 12.30, The Fireflies. 12.45, The Townsend Murder Mystery. 1.0 **to 3.30, New York** Relay. 1.0, Captain Diamond's Adventures. 1.30, Time Signal and Rin-Tin-Tin Thrillers. 1.45, Thurston, the Magician. 2.0, Death Valley Days. 2.30, Wayne King's Orchestra, with Lady Esther. 3.0, Carson Robinson's Pioneers. 3.15, Vic and Sade. 3.30, The 1933 Income Tax—by Robert L. Wickline. 3.45, Prof. McLallen, Sara and Sassafras, from **New York.** 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News Flashes. 4.20, Bertha Schmid (Soprano). 4.30, Josef Lhevinne (concert Pianist), from **New York.** 5.0, Smith Ballew and his Orchestra. 5.15, KDKA Artist Bulletin. 5.17, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.,** See **Brno.** 4.10, Talk on Industry. 4.20, See **Brno.** 4.50, Gramophone Records of Variety Music. 5.5, Agricultural Talk. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission: Book Review, Agricultural Notes, and Talk on Fire Insurance. 6.0, Chimes. 6.2, News. 6.10, English Conversation: From Prague to Chicago. 6.25, Economic Notes. 6.40, Mr. Josifek gets married—a Sketch. 7.30, Clarinet Recital by Vladimir Riha: Concert Piece, Op. 229 (Kalivoda); A Movement from the Concerto for Clarinet (Tmecek). 8.0, Time Signal. 8.2, Orchestral Concert: Polovtsian Dances from Prince Igor (Borodin); Norwegian Dances Nos. 1 and 2 (Grieg); Spanish Dances Nos. 1 and 4 (Moszkovsky); Slav Dances Nos. 4 and 5 (Dvorák); Italian Waltz (Joh. Strauss); Japanese, Russian, Spanish, and Czech Dances (Provaznik). 9.0, Time Signal. 9.2, News, Daily Review, and Sports Notes. 9.15, Popular Music on Gramophone Records. 10.0 (approx.), Close Down.

MARCH 23rd THURSDAY *continued*

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW; **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.**—**5.0 p.m.** (from **Geneva**), Sports Talk. 5.20, Esperanto Lesson. 5.35 (from **Lausanne**), Italian Lesson. 6.10 (from **Geneva**), Parsifal—Opera (Wagner), relayed from the Geneva Theatre. 8.10 (approx.) (in an interval), News Bulletin and Weather Forecast. 11.0 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—**8.30 p.m.,** Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes. 9.2, News Bulletin. 9.30, Reading. 10.0, Concert by the Station Quartet, followed by Arias and Popular Music on Gramophone Records.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres,** and **2RO, 25.4 metres.**—**6.45 a.m.,** Gymnastics. **7.15 to 7.30 a.m.,** Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. **12 Noon,** Time and Announcements. **12.2 p.m.,** Humorous Talk. **12.5 to 1.15 p.m.,** Concert from **Turin.** In the interval from **12.30 to 12.45,** Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. **4.30 to 5.15,** Orchestral Concert: Overture, Le donne curiose (Pisglio); Ricordo (Orla); Gondoletta (Ricciardi); Pianoforte Solo, Prelude on the White Keys (Modena); Selection from Conchita (Zandonai); Dances from Il Re David (Castelnuovo-Tedesco); Melody (Escobar). 6.0 **(Naples),** Shipping and Sports Notes. 6.10, Agricultural and Popolavoro Notes. 6.20, Giornale Radio. 7.0, Time and Announcements. 7.2, Talk. 7.15, Light Music on Gramophone Records. 7.30, Sports Notes and Tourist Report. 7.45, Symphony Concert, conducted by Riccardo Santarelli: Leonora Overture No. 3 (Beethoven); Talk on Literature and Art; Symphonic Poem, Le Rouet d'Omphale (Saint-Saëns); Dance from Dafni (Mulè); Allegretto and Scherzo from the Sixth Symphony (Tchaikovsky); Siegfried Idyll and Ride of the Valkyries (Wagner). Announcements in the interval. 9.55, News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC CMPANY (WGY); 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.**—**12 Noon,** Southern Jubilee Quartet. **12.15 a.m. (Friday),** Stock Reports. 12.30, Gold Medal Band. **12.45 to 3.0, New York** Relay. 12.45, The Goldbergs—Comedy Sketch. 1.0, Fleischmann Hour. 2.0, Captain Henry's Show Boat. 3.0, Lucky Strike Hour, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE, 244.1 metres,** and **BERNE, 245.9 metres.**—**11.28 a.m.,** Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40 (from **Basle**), Orchestral Concert, conducted by Otto Wallrodt. **12.35 p.m.,** Weather and Exchange. **12.40 to 2.30,** Interval. 2.30 (from **Zürich**), Talk for Women: Nursing as a Career. 3.0 (from **Zürich**), Concert of Light Music by the Radio Orchestra 4.0 (from **Zürich**), Popular Music on Gramophone Records. 4.30, Weather. **4.35 to 5.30,** Interval 5.30 (from **Basle**), Talk on the Opening of the Swiss Sample Fair in 1933. 6.0, Time, Weather and Traffic Report. 6.15 (from **Basle**), Elementary Italian Lesson. 7.0 (from **Basle**), Concert by the Spanish Lute Quartet. Los Aguilar. 7.45 (from **Basle**), Variety Music on Gramophone Records. 8.0, News and Weather. 8.10 (from **Basle**), Introduction to the following Relay. 8.25, Part Relay of Parsifal (Wagner), relayed from the Grand Theatre, Geneva. 11.0 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 35 kW. Relayed by **Boden, 1,229.5 metres; Goteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.**—**4.5 p.m.,** Studio Service. 4.30, Programme for Children. 4.45, Light Music. 5.45, Elementary English Lesson relayed from **Jönköping (201.3 metres).** 6.30, Talk, relayed from **Malmo (231 metres).** 7.0, String Quartet in F Sharp Minor (Schumann). 7.15, Weather and News. 7.30, A Play (Albert Viksten). 8.0, Popular Music on Gramophone Records. 9.0, Orchestral Concert. Soloist: Bronislaw Mittmann (Violin); Concerto in D Op. 77 for Violin and Orchestra (Brahms); Prélude à l'après-midi d'un Faune (Debussy); Overture, Donna Diana (Reznicek). 9.45, Weather and News. 10.0 (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.,** Popular Concert on Gramophone Records. 12.45 **p.m.,** News Bulletin. 1.0, Time Signal. 1.1, Market Prices. 1.5, Jazz Music, conducted by M. Roskam. 2.0, Programme for Children. **3.0 to 4.15,** Interval. 4.15, Elocution Lesson in French. 4.30, Programme for Children, relayed from **Bordeaux Lafayette (304 metres).** 6.0, Talk in German: French Civilisation. 6.15, Talk for Women in French: Domestic Schools in France and Abroad. 6.30, Orchestral Concert, conducted by Maurice de Villers. March from The Prophet (Meyerbeer); Overture, Peter Schmoll (Weber); Selection from Aida (Verdi); Pianoforte Solo; Orchestral Suite, On the Volga (Vladimir Dyck); Bourrée fantasque (Chabrier). 7.30, Time Signal. 7.31, News. 7.45, Song Recital by M. Hérent (Baritone), on Gramophone Records. 8.20, Lottery Results and Announcements. 8.30, Concert, arranged by the Cercle Musical Messin, relayed from **Metz.** Soloists: Mlle. Elisabeth Kotlaroff (Songs), Mme. Antoinette Antonowitch (Songs), and M. Marcel Payen ('Cello); Overture, Semiramis (Rossini); Three Songs: (a) O del mio dolce ardor (Gluck), (b) Air from Kostchei the Immortal (Rimsky-Korsakov), (c) Melody (Paul); The Bees' Song for Mixed Six-Part Choir (de la Tombelle); Four Duets: (a) Doubt (Glinka), (b) Young Girls (Dargomijsky), (c) Evening (Stepowoi), (d) Spring (Tchekrigine); Concert Piece for 'Cello and Orchestra (Heberlein); French Rondo for a Women's Two Part Choir (Pierné); Three Songs: (a) Air from Figaro (Mozart), (b) C'est l'Extase from Ariettes oubliées (Debussy), (c) Je sais bien que tu partiras! (Aziza Moussa); Italian Caprice (Tchaikovsky); Duets: (a) Gipsy Song in the Style of the Hungarian Dances (Brahms), (b) My Song (Glazunov), (c) Song (Dargomyisky); Mixed Choir and Orchestra: March from Tannhäuser (Wagner). In the interval: Legal Talk.

STUTTGART

MUHLACKER, 360.5 metres, 60 kW.; and **FREIBURG, 570 metres.**—**12.30 p.m.,** Folk Songs on Gramophone Records. 1.0, Programme arranged by the Post Office. 1.30, Spanish Lesson. 2.0, Elementary English Lesson. 2.30, Programme for Young People. **3.30 to 4.0** Interval. 4.0, Concert by the Stuttgart Philharmonic Orchestra, conducted by Gustav Görlich; Soloist: Günter Homann (Pianoforte): Festliche Suite, Op. 42 for Orchestra (Klaus); Pianoforte Concerto in D (Mozart). 5.15, Time, Weather, and Agricultural Notes. 5.25, Talk: A Dowry for the Daughter and Capital to establish a Business for the Son. 5.50, Talk for the Hundred and Seventieth Anniversary of the Birth of Jean Paul Richter. 6.15, Time and News. 6.30 (from **Mannheim**), Concert of German and Italian Opera Music by the Mannheim Philharmonic Orchestra; Conductor: Rudolf Boruvka: Overture, Idomeneo (Mozart); Selection from The Magic Flute (Mozart); Selection from Undine (Lortzing); Prelude to the Third Act and Bridal Chorus from Lohengrin (Wagner); Selection from (a) Die toten Augen (d'Albert), (b) Norma (Bellini), (c) Il Trovatore (Verdi), (d) André Chénier (Giordano). 7.45, The Note Book of the Graces—Songs and Poems from old Almanacs; Hermine Behn (Songs) and Ludwig Donath (Recitations). 8.45, Pianoforte Sonata in F Minor, Op. 5 (Brahms), by Walter Rehberg. 9.10, Time, News, Weather, and Programme Announcements.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—**6.0 p.m.,** News Bulletin. 6.15, Jazz Music. 6.30, Programme for Children. 7.0, Popular Melodies. 7.15, News, Racing Results, and Market Prices. 7.25, Local News. 7.30, Operetta Music: Selection from La Fille de Madame Angot (Lecocq); Song from Die Fledermaus (Joh. Strauss); Selection from The Dollar Princess (Fall). 7.45, Opera Music; Song from L'Attaque du Moulin (Bruneau); Two Songs from Werther (Massenet); Song from Les Brigands (Offenbach); Song from Tosca (Puccini). 8.0, Military Music. 8.15, Sound Film Music. 8.30, Accordion Solos. 8.45, Extract from Thaïs—Opera (Massenet). 9.45, Instrumental Music: Overture (Leggett); Mazurka in B Minor (Chopin); Fireworks (Stravinsky); Turkish March (Mozart); Selection from El amor brujo (Falla); Liebesleid (Kreisler). 10.15, North African News. 10.30 Concert for Listeners in Morocco. 11.0, Solos. 11.15, Operetta Music: Selection from Robert the Pirate (Romberg), and Véronique (Messager). **11.30 to 12 Midnight,** Programme in English by the I.B.C. 11.30, The I.B.C. Hall Hour: You've got me in the Palm of your Hand; Just a little Home for the Old Folk; Sheltered by the Stars; Fit as a Fiddle; Sweethearts for ever; Three's a Crowd; If you would learn to live; Yes Mr. Brown. 11.57, I.B.C. Goodnight Melody. 12 **Midnight,** Weather and Announcements. **12.5 a.m. (Friday),** Argentine Music. 12.16, Accordion Solos. 12.30 (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**4.10 to 5.0,** See **Turin.** 6.0, Light Music on Gramophone Records. 6.20 till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.6 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.**—**4.10 to 5.0 p.m.,** Orchestral Concert: Overture, Giovanna d'Arco (Verdi); Andalusian Romance (Sarasate); In campagna (De Micheli); Serenata fiorentina (Culotta); Pavane (Guecchi); Scherzo, Le Falene (Escobar). 5.35, Giornale Radio, Agricultural and Dopolavoro Notes. 6.0, Gramophone Records of Variety Music. 6.20, Giornale Radio. 6.30, Time, Announcements, Tourist Report and Gramophone Records (contd.). 7.0, Giornale Radio, Weather and Variety Music on Gramophone Records. 8.0, Variety Programme. 9.0, Talk. 9.15, Orchestral Concert. 10.0, Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and **50.26 metres (Evening);** 10 kW.—**10.0 to 10.15 a.m.,** Religious Information in French. 7.0 to 7.15 **p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.1 metres.** — **2.20 p.m.,** Pianoforte Recital of Contemporary Music: Little Sonata in A Minor (Walter Bricht); Lied[illegible]dier, Waltz and Finale from Op. 29 (Korn[illegible]ith); Caprices mignons on a Children's Song (Urbantschitsch); Humoresque Op. 15 (Wladigerov); Pianoforte Piece (Salmh[illegible]fer). 2.45, Recital of Children's Songs by Lilly Claus; Lullaby for Bonzo (Pahlen); Three Songs (Heller): (a) Jahreskind, (b) Wenn ich sein Lachen höre, (c) Kindes Erwachen; Two Songs (Wetchy): (a) Wenn ich gross bin, (b) Die fünf Hühnerchen; Dem Kinde zur Nacht (Schmidt); two songs (Vokl: (a) Was man von Tieren lernen kann; Sonnenhur; Two Songs (Leinecke): (a) Storch, Storch, Storch, Steiner, (b) Dance Song; Two songs (Keldorfer): (a) Auch fangkehrer, (b) Mauserl, pieb; Folk Songs (arr. Cerné): (a) Bäuerlein, tik, tik, tak, (b) Mein Hanserl, willst du tanzen. 3.10, Talk on Cross-Country Running. 3.20, Talk: Richard Wagner in Italy. 3.45, Report on Austrian Affairs in Esperanto. 4.0, Gramophone Concert. 5.0, Talk: Karl Marx and Women. 5.25, Talk: Seasonable Tourist Propaganda. 5.45, Theatre Talk. 5.50, Talk: What Everyone should know about Traffic Laws. 6.15, Time, Weather and Programme Announcements. 6.25, Recital of Upper Austrian Spinning Songs. 7.5, Ninth Concert of the Gesellschaft der Musikfreunde; The Vienna Symphony Orchestra, the Choir of the Gesellschaft der Musikfreunde and Soloists, relayed from the Musikvereinsaal; The Ninth Symphony in D Minor (Bruckner); Te Deum (Bruckner). In an interval at 8.5 (approx.), News, Weather and Announcements. 8.45, Snow Report. 9.0, Cabaret Concert relayed from the Oase Restaurant.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Bugle Call from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Popular Music on Gramophone Records. 11.30, Weather Forecast. 11.35, Concert for Schools by the Philharmonic Orchestra, conducted by J. Oziminski. Soloists: Mme. Kmi.a (Violin) and Mme. Leska (Songs). Introductory Talk by S. Natanson. Overture, The Magic Flute (Mozart); Scherzo from the Eroica Symphony (Beethoven); Turkish March from The Ruins of Athens (Beethoven); Songs: Three Ecossaises (Beethoven); Violin Solos: (a) Minuet (Beethoven), (b) Rondino (Beethoven), (c) Abendlied (Schumann), (c) Ave Maria (Schubert), (e) Moment Musical (Schubert); Songs: (a) Die Forelle (Schubert), (b) Ständchen (Schubert), (c) Der Stern (Schumann), (d) Der Soldat (Schumann); Carnaval des animaux (Saint-Saëns). 1.0 **to 2.10.** Interval. 2.10, Announcements. 2.15, Economic Notes. 2.25, Light Music on Gramophone Records. 2.35, Talk: Balconies and Summer Houses. 2.50, Popular Music on Gramophone Records. 3.25, Intermediate French Lesson. 3.40, Talk, relayed from **Cracow (312.8 metres).** 4.0, Song Recital by Mme Cornell. In the interval, Announcements. 4.40, Topical Talk. 4.55, Programme Announcements. 5.0, Educational Talk. 5.20, Sports Notes. 5.25, Light Music. 6.0, Miscellaneous Items. 6.20, Agricultural Report. 6.30, Radio Journal. 6.45, Introductory Talk to the following Transmission. 7.5, See **Vienna.** 8.0, Sports Notes. 8.5, Programme Announcements. 8.15, Relay from **Vienna** (contd.). 8.45, Reading from Pygmalion (Shaw). 9.30, Dance Music. 9.55, Aviation Weather Report and Police Notes. 10.0, Dance Music.

WILNO

563 metres; 16 kW.—**5.45 p.m.,** Miscellaneous Items. 6.0, Reading. 6.10, The Letter Box. 6.30, See **Warsaw.** 10.0, Relay of Another Station. 11.0 (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

FRIDAY

MARCH THE TWENTY-FOURTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	The Grand National: A Running Commentary from Aintree, by R. C. Lyle and W. Hobbin. Light classical concert.
LONDON REGIONAL	A Coleridge-Taylor recital. "Three Soldiers," a play by L. du Garde Peach. Programme of contemporary music.
MIDLAND REGIONAL	Musical comedy programme.
NORTH REGIONAL	Programme of musical comedy selections.
WEST REGIONAL	"The Lady of Belmont," a sequel to "The Merchant of Venice," by St. J. G. Ervine.
SCOTTISH REGIONAL	Concert by the winners of the Festival for the Unemployed.
BELFAST	Belfast Philharmonic Society's concert.

ABROAD

BARI	7.35 p.m. Concert of Opera music.
BRUSSELS (No. 2)	8 p.m. Gala concert by the Symphony Orchestra, conducted by A. Meulemans.
BUCHAREST	7 p.m. The Philharmonic Orchestra, relayed from the Roumanian Athenæum.
PALERMO	7.45 p.m. Opera: "The Pearl Fishers," by Bizet.
PRAGUE	7.5 p.m. Concert from the Smetana Hall, conducted by A. Zemlinsky.
RADIO-PARIS	8.45 p.m. Symphony concert, conducted by E. Bigot.
ROME	3 p.m. Song recital by Lotte Lehmann.
STRASBOURG	8.30 p.m. Symphony concert from Hagondange.
WARSAW	7.15 p.m. Symphony concert by the Philharmonic Orchestra.

ATHLONE

413 metres; 60 kW.; and CORK, 224.4 metres.—1.30 to 2.0 p.m., Time, Weather, Stock Report, and Popular Music on Gramophone Records. **2.45 to 3.15,** Running Commentary on the Grand National. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gardening Talk. **7.45,** Talk: Wet Fly and General Fishing Topics. **8.0,** Pianoforte and Violin Duets by E. O' C. Miley and L. Thompson. **8.30,** Soprano Solos by Marie Hipwell. **8.50,** Liam Andrews (Milleann Pipes). **9.5,** Variety Half Hour by T. Madden and Company. **9.35,** Orchestral Music. **9.45,** Baritone Solos by Cecil O' Shaughnessy. **10.0,** Orchestral Music. **10.30,** Time, News, Weather, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—6.0 p.m., Trio Concert. **7.0,** Dance Music, relayed from the Ritz Hotel. **7.30** (in an interval), Exchange Quotations. **8.0,** Light Music on Gramophone Records and News. **9.0,** Chimes from the Cathedral, Weather Forecast, Messages to Seamen, Exchange Quotations, and Market Prices. **9.10,** Concert by the Station Orchestra. **10.0,** Vicente Diez de Tejada reads from his own Works. **10.15,** Orchestral Concert, relayed from the Café Español. **11.0** (in an interval), News Bulletin. **12 Midnight** (approx.), Close Down.

BARI

270 metres; 20 kW.—7.0 p.m., Agricultural Notes, Tourist Talk, and Dopolavoro Announcements. **7.20,** Giornale Radio and News Bulletin. **7.30,** Time Signal and Announcements. **7.35** (approx.), Concert of Opera Music: Overture, Le Maschere (Mascagni); Soprano Solo from I pittori fiamminghi (Smareglia); Tenor Aria from The Barber of Seville (Rossini); Selection from Act I of La cena delle beffe (Giordano); Soprano Aria from Lorelcy (Catalani); Tenor Aria from Mignon (Thomas); Selection from La Gioconda (Ponchielli); Pastoral Overture (Krier); Soprano Song from The Pearl Fishers (Bizet); Tenor Aria from L'Elisir d'amore (Donizetti); Barcarolle from Silvano (Mascagni); Soprano Solo: Song from Iris (Mascagni); Tenor Solo from L'Arlesiana (Cilea); Selection from L'uomo che ride (Pedrollo). In the interval: Talk. **9.30,** Concert, relayed from the Grand Hotel, Moderno. **9.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—4.0 p.m., Talk. **5.55,** Time and Programme Announcements. **6.0,** Hugo Wolf Song Recital: Gebet; Neue Liebe; Er ist's; Verborgenheit; Elfenlied; Der Genesene an die Hoffnung; Der Gärtner. **6.40,** Talk for Sokols. **7.15,** See **Warsaw. 9.0** (approx.), News.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—12.45 p.m., News. **1.0,** Gramophone Concert from **Berlin (Witzleben). 2.0,** Talk on Robert Schumann. **2.30,** Weather and Exchange. **2.45,** Reading (Matthias Claudius). **3.0,** Educational Report. **3.30,** See **Leipzig. 4.10,** Topical Talk. **4.30,** Talk: The Right of Pasture. **5.0,** Pianoforte Recital by Martha Erbs-Küntzel: Five Pieces (Reger): (a) Prelude for the Left Hand, (b) Moment musical, Op. 44, No. 5, (c) Phantastische Träumerei, Op. 24, No. 3, (d) Piece from Träume am Kamin, Op. 143, No. 2, (e) Two Waltzes, Op. 22; Intermezzo, Op. 117, No. 2 (Brahms); Rhapsody, Op. 119, No. 4 (Brahms). **5.30,** Health Talk. **5.55,** Weather for Farmers and Announcements. **6.0,** Talk on Bamberg. **6.30,** A Poem. **6.35,** Political Press Review. **7.0,** See **Breslau. 8.0,** Die Erweckung des Lazarus—Oratorio for Soloists, Choir, and Orchestra (Schubert). **9.15,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** See **Frankfurt. 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—3.30 p.m., See **Leipzig. 4.30,** Talk: The World at the Turning Point? **4.50,** The Musical Magazine—Extracts from New Musical Publications, with Commentary. **5.40,** Sociological Review. **5.55,** The Witzleben Station informs it Listeners . . . . **6.0,** Topical Talk. **6.10,** Talk: Life in a Beehive. **6.55,** Announcement. **7.0,** Concert by the Station Orchestra, conducted by Edwin Lindner: Overture, The Barber of Seville (Rossini); Selection from A Midsummer Night's Dream (Mendelssohn); Scherzo, Masken im Karneval (Scherber). **8.0,** In an Old Curiosity Shop—Radio Report from Stettin, on Gramophone Records. **8.15,** Pianoforte Concerto in B Flat, Op. 83 (Brahms), by Conrad Hansen and the Berlin Station Orchestra, conducted by Eugen Jochum. **9.0,** Weather, News and Sports Notes. **9.15,** Orchestral Concert from Kempinski and Co.'s Restaurant. In the interval at **10.0** (approx.), Radio Report on the Police Sports in the Sportpalast (on Gramophone Records). **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—7.0 p.m., News. **7.40,** School Notes. **7.55,** Lottery Results. **8.0,** Spanish Lesson. **8.15,** News and Weather. **8.30,** Symphony Concert: Overture, Rosamund (Schubert); A Night on the Bare Mountain (Mussorgsky); Gramophone Records (Donizetti): (a) Air from Lucia di Lammermoor, (b) The Daughter of the Regiment; Readings from (a) Vrilles de la Vigne (Colette), (b) Une soirée perdue (de Musset); Children's Corner (Debussy); Gramophone Records: (a) Bell Song from Lakmé (Delibes), (b) Aria from Manon (Massenet); Divertissement on Russian Songs (Rabaud-Rudd).

BRATISLAVA

279 metres; 14 kW.—5.40 p.m., Gramophone Records of Light Music. **5.45,** Slovak Spelling Lesson. **6.0,** See **Prague. 6.25,** See **Moravská-Ostrava. 7.0,** See **Prague. 9.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and GLEIWITZ, 253 metres.—12.5 p.m., Weather for Farmers. **12.10,** Hungarian Music on Gramophone Records. **12.45,** Time Weather, News and Exchange Quotations. **1.5,** Gramophone Concert. The London Symphony Orchestra, conducted by A. Coates. (a) The Cuckoo and the Nightingale (Handel), (b) Concerto for Organ and Orchestra; Fritz Kreisler and Efrim Zimbalist: Largo from the Concerto in D Minor for Two Violins (Bach); Wanda Landowsky (Harpsichord): Melody (Couperin); The Elman String Quartet: Finale from the Quartet in E Flat (v. Dittersdorf); John Amadio (Flute) and Orchestra: Andante from the Flute Concerto in C (Mozart); Wilhelm Backhaus (Pianoforte): Waltz in E Flat (Chopin); Pablo Casals ('Cello): Adagio in A (Boccherini); The London Symphony Orchestra, conducted by Leo Blech: Saltarello from the Italian Symphony (Mendelssohn). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Reading for Young People. **3.10,** Concert by the Station Orchestra, conducted by Franz Marszalek. Soloist: Bruno Jagielski (Tenor). Symphonic Prologue to King Oedipus (Max v. Schillings); Selection from The Miracle (Humperdinck); Selection from Das Christelflein (Pfitzner). **4.30,** Agricultural Prices. **4.35** (approx.), Talk: German Colonisation Problems. **4.55,** Talk: The Writings of Oskar Baum. **5.25,** Programme to be announced. **6.0,** Talk: The Educational Problem in the Polish Corridor. **6.30,** Weather Forecast and Meat Market Prices. **6.35** (approx.), Concert by the Philadelphia Symphony Orchestra, conducted by Leopold Stokovsky, on Gramophone Records. Entr'acte from Khovanstchina (Mussorgsky); Bacchanale from Samson and Delilah (Saint-Saëns); March from Thésée (Lully); Oriental Dance (Glazunov); Corpus Christi Festival (Albeniz); Slav March (Tchaikovsky). **7.0,** King Sporck—Radio Play (Freidrich Griese). **8.0,** News. **8.10,** Request Concert by the Station Orchestra, conducted by Franz Marszalek. **9.10,** Time, Weather, News, Sports Notes and Programme Announcements. **9.25,** Political Periodical Review. **9.50,** Orchestral Concert from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BRNO

342 metres; 35 kW.—3.10, Concert by the Station Orchestra, conducted by B. Bakala. **3.55,** Theatre Notes. **4.5,** Concert by the Moravian String Quintet. **5.5,** Talk on Art. **5.15,** Talk for Workers. **5.25,** German Transmission: News, Sports, Notes, and Talk. **6.0,** See **Prague. 6.25,** Gramophone Records of Popular Music. **6.40,** Readings. **7.0,** See **Prague. 9.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—12 Noon, Concert by the Little Station Orchestra, conducted by P. Leemans: Marche printanière (Filipucci); An den Frühling (Grieg); Ballet Music from Hamlet (Thomas); Sous les tilleuls (Massenet); Spring (Verdi); Au printemps de la vie (Mouton); Spring Song (Mendelssohn); Siegmund greets the Spring Night, from The Valkyries (Wagner); Spring Waltz (Waldteufel). **1.0 p.m.,** Le Journal Parlé. **1.10,** Extracts from Lucia di Lammermoor—Opera (Donizetti), on Gramophone Records. **2.0,** Educational Programme. **5.0,** Concert by the Radio Orchestra, conducted by Franz André: Overture, Les Mousquetaires au Couvent (Varney); Conte pastoral and Conte amusant (Godard); Romance for Violin (d'Ambrosio); Rustic Revels (Fletcher); Simple aveu (Thomé); Viennese Operetta Potpourri (Hruby); Selection from Le petit duc (Lecocq). **6.0,** Financial Talk. **6.15,** Gramophone Records of Light Music. **6.30,** Concert by the Little Station Orchestra, conducted by P. Leemans: Overture, Le tour de moulinet (Hubans); Pantins et poupées (De Taye); Mazurka for Violin (Wieniawsky); Mademoiselle Sourire (Lachaume); Petite Suite for Pianoforte (Donliez); Donauwelleu (Ivancvici). **7.15,** Wireless Talk. **7.30,** Literary Review. **8.0,** Military Concert, with Commentary. **8.45,** Talk by M. Brichard: Our Marvellous Cruise round the World. **9.0,** Concert by the Radio Orchestra, conducted by Franz André: Soloist: Christiane Berlo (Soprano); Overture, Orpheus in the Underworld (Offenbach); Ballet égyptien (Luigini); Soprano Aria from Quentin Durward (Gevaert); Farandole (Dubois); Soprano Solos: (a) Depuis un an (Massenet), (b) Air de la Violette (Van Oost); Czardas (Michiels); Tonwellen (Manfred); Walzer-Trümpfe (Robrecht). **10.0,** Le Journal Parlé. **10.10,** Descriptive Music: Dornröschens Brautfahrt (Rhode); In a Clock Store (Orth); The Old Musical Box (Humphries); The Moth (Mandt); Cupid's Parade (Rivelli); Hochzeitszug in Liliput (Translateur); In der Spielschule (Gutzeit); The Gnomes (Eilenberg); March of the Black Dolls (Rathke); Am Erlenbach (Dreyer); In a Bird Shop (Lake); A Hunt in the Black Forest (Voelker); The Cockchafers Tea Party (Noack); The Clock and the Dresden Figures (Ketelbey); Chinese Street Serenade (Siede); March of the Tin Soldiers (Jessel). **11.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Gramophone Concert: Introduction, Arteveldelied (Gevaert); Overture, The Huguenots (Meyerbeer); Waltz from Mirella (Gounod); Selection from Samson and Delilah (Saint-Saëns); Air from The Pearl of Brazil (David); Selection from Faust (Gounod); Two Airs from Marouf (Rabaud); Selection from Lakmé (Delibes); Selection from La cocarde de Mimi Pinson (Goublier). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by Paul Leemans: Berliner Luft (Lincke); Melody (Rubinstein); Violin Solo: Serenade (Lalo); La demoiselle du printemps (Goublier); Opera Potpourri (Schreiner); 'Cello Solo: Berceuse (Renard); Waltz Suite (Gilson); March, Pompadour (Fall). **2.0,** Educational Programme. **5.0,** Gramophone Concert: March from Sigurd Jorsalfar (Grieg); Romance, Op. 26 (Svendsen); Rustle of Spring (Sinding); Ich liebe dich (Grieg); Grotesque March (Sinding); Symphonic Dances (Grieg); In the Hall of the Mountain King, from the Peer Gynt Suite (Grieg). **5.45,** Pallieter's Programme. **6.30,** Vocal and Orchestral Concert of Flemish Music. **7.15,** Talk by Marcel de Ridder. **7.30,** Wireless Notes. **8.0,** Gala Concert by the Symphony Orchestra, conducted by A. Meulemans: Soloist: Mlle. Briffaux (Songs); Programme of Music by J. van Hoof, with Commentary by J. Horemans. **9.0,** Humorous Talk. **9.5,** Gala Concert (contd.): Wagner Programme in Honour of the Fiftieth Anniversary of his Death; Bacchanale from Tannhäuser; Elisabeth's Aria from Tannhäuser; Overture, The Mastersingers; Prelude to Tristan und Isolde; The Death of Isolde, from Tristan und Isolde; Kaiser-Marsch. **10.0,** Le Journal Parlé. **10.10,** Gramophone Concert of Light Music.

BUCHAREST

394 metres; 12 kW.—4.0 p.m., Concert by the Station Orchestra: March (Menichetti); Waltz from Casanova (Lincke); Musical Jokes (Ashton); Ballet Music from La Juive (Halévy). **5.0,** News. **5.10,** Talk. **5.25,** Concert (contd.): Romanian Potpourri (Welsch); Selection from Don Giovanni (Mozart). **6.0,** Talk: Romanian Novels. **6.40,** Light Music on Gramophone Records. **7.0,** Concert by the Philharmonic Orchestra, relayed from the Romanian Athenaeum: Conductor: M. I. Perlea; Symphony in B Minor (Schubert); Symphony No. 2 in C Minor for Orchestra, Choir, and Soloists (Mahler). **9.0,** News.

BUDAPEST

550 metres; 18.5 kW. Programme also relayed on **840 metres** from **6.0 p.m.** (approx.) till Close Down.—**4.0 p.m.,** Operetta Concert: Overture to an Operetta (Ziehrer); Waltz (Kerker); Selection from The Greek Slave (Sidney Jones); Selection from the Third Act of Der liebe Augustin (Fall); Overture, The Carnaval Fairy (Kálmán); Waltz from Eva (Lehár); Potpourri (Szabados); Hungarian March (Vineze). **5.30,** The Letter Box. **6.0,** Reading. **6.30,** Relay from the Royal Hungarian Opera House. News in the intervals. After the Relay, Cigány Music from the Café Spolarich. **10.0,** Talk in English: The World Jamboree 1933.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 0.75 kW.; and KALUNDBORG, 1,153 metres; 7.5 kW.—11.0 a.m., Time and Chimes from the Town Hall. **11.5,** String Ensemble Concert, conducted by Harald Andersen, relayed from the Bellevue Strandhotel. **12.15 p.m.,** Talk for Schools: Music from 1750-1800. **12.45 to 2.0,** Interval. **2.0,** Concert by the Radio Orchestra, conducted by Lanny Grondahl; Soloist: Ebba Bjarnhof (Songs): Overture, Little Christie (Hartmann); Selection from Gretna Green (Gniraud); Intermezzo from Tiefland (d'Albert); Selection from The Daughter of the Regiment (Donizetti); Rheinlegendchen (Mahler); Bacchanale from Samson and Delilah (Saint-Saëns); Danish Songs; Overture, Le Carnaval de Venise (Thomas); Dance from the Gipsy Suite (Coleridge-Taylor); Babillage (Bossi); Musette from Christian II (Sibelius); Selection from Faust (Gounod); Czardas from Der Geist des Wojewoden (Grossmann). **4.0,** Programme for Children. **4.40,** Exchange and Fish Market Prices. **4.50,** Talk on Danish Literature—Heiberg's Elverhoj. **5.20,** German Lesson. **5.50,** Weather Forecast. **6.0,** News. **6.15,** Time Signal. **6.30,** Talk. **7.0,** Chimes from the Town Hall. **7.5,** Programme by Per Knutzon. **7.0,** A Bankruptcy—Comedy in Four Acts (Björnstjerne-Björnson). **9.10,** News. **9.25,** Orchestral Concert, conducted by Emil Ree-

sen: Suite of Old English Music (Rabaud); Suite from Pulcinella (Stravinsky). **10.0**, Dance Music, relayed from the National Scala. In the interval at **11.0**, Time and Chimes from the Town Hall. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**6.0 to 7.0 p.m.**, Programme in English by the I.B.C. C. Danvers-Walker, B. McNabb, and F. Lamping Announcing. **6.0**, Concert for Torquay Listeners: Selection from Wild Violets (Stolz). Song: The White Horse Inn, from White Horse Inn (Benatsky); A Bachelor Gay, from The Maid of the Mountains (Fraser Simpson); Selection from The Cat and the Fiddle (Kern); I give my Heart, from The Dubarry (Millöcker-Muckebeu); Selection from The Desert Song (Romberg); Selection from Frederica (Lehár). **6.30**, Organ Recital for Weymouth Listeners: Sylvan Scenes (Fletcher); The Sacred Hour (Ketelbey); Glow Worm Idyll (Lincke); If you were the only Girl in the World; In a Japanese Garden (Higgs); Il Bacio (Arditi); Popular Melodies. **7.0**, Programme in French. **10.0 p.m.** till Close Down, Programme in English by the I.B.C. **10.0**, Light Music: Got a Date with an Angel; I'm happy when I'm hiking; Down Sunnyside Lane; Guilty; Hang out the Stars in Indiana; The Haunted House; Live, Love, and Laugh; Belle of Barcelona; The Pied Piper of Hamelin; I'd rather be a Beggar with you; Say a little Prayer for Me; June Time is Love Time; A Selection of Miracle Melodies; Just Imagine; When it's Sunset on the Nile. **11.0**, Orchestra Concert: Dance of the Hours from La Gioconda (Ponchielli); Christmas Tree Waltz (Rebikov); Moment musical (Schubert); Liebestraum (Liszt); Overture, Hansel and Gretel (Humperdinck); Le carnival des animaux (Saint-Saëns); Orientale (Cui); Chant sans paroles (Tchaikovsky). **11.30**, Sea Chanties: At Santa Barbara (Kennedy Russell; A rovin' (Terry); The Drunken Sailor (Terry); Rio Grande (Harris); Four Jolly Sailormen (German); Shenandoah (Terry); Selection, Britelodia (Humphries). **12 Midnight,** Variety Music: Waltz, The Blue Danube (Joh. Strauss); The Hiker's Song; The Rosary (Nevin); The Old Inns of England; Favourite Tunes of the Moment; Tesoro mio (Becucci). **12.30 a.m. (Saturday),** Vocal Duets and Mandoline Solos: Mandolin Solo: Czardas (Monti); Duets: (a) In an Old World Garden (Pepper), (b) I ain't gonna tell (Strachan), (c) When you've gone (Werner), (d) Looking for Love (McHugh); Mandoline Solo: Mandolinata; Duets: (a) She Can't make up her Mind (Castling), (b) Now I'm in Love (Shapiro). **1.0**, Light Music: Let's all sing like the Birdies Sing; Pu-leeze Mr. Hemmingway; You'll always be the same Sweetheart; Till To-morrow; Let's all Dance the Polka; The Japanese Sandman; Marching Along Together; Young and Healthy; Butterflies in the rain; Standing at the Corner; A Little Street where old Friends Meet; Wheezy Anna; A Boy and Girl were Dancing; I'll never have to dream Again. **2.0**, Popular Songs: The Thrill is Gone; The Dancing Lesson; Sweet and Lovely; Blue Moon in the Sky; My Sweet Tooth says I Wanna; You're blasé; I don't know Why; To-day I feel so Happy. **2.30**, Hawaiian Band: Bye, bye, Blues; Somewhere in old Wyoming; Old New England Moon; My Bluebird was caught in the Rain; Nobody cares if I'm Blue; Go Home and Tell your Mother; O Donna Clara; With my Guitar and You. **2.57**, I.B.C. Goodnight Melody. **3.0**, Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW; **CASSEL, 245.9 metres; and TRIER, 259.3 metres.**—**6.15 p.m.**, Time, Announcements, Weather and Economic Notes. **6.30**, Literary and Musical Programme. **7.30**, Concert by the Station Orchestra, conducted by Reinhold Merten: Soloists: Erich Kraack (Viola), Justus Gelfius (Flute), and Erich Itor Kahn (Pianoforte): Overture, Rübezahl (Weber); Andante tranquillo and Allegro from Undine, Op. 167 for Flute and Pianoforte (Reinecke); Witches' Ride and Gingerbread Waltz from Hansel and Gretel (Humperdinck); Märchenbilder, Op. 113—four Pieces for Viola and Pianoforte (Schumann); Overture, To the Story of the Lovely Melusina (Mendelssohn). **8.30**, A Discussion on Gustav Freytag, by his son, Gustav W. Freytag and Dr. Rudolf Hoffmann. **9.0**, Time, News, Weather and Sports Notes. **9.30**, Concert by the Station Orchestra: Soloist: Franz Fassbender ('Cello): Overture, The Bartered Bride (Smetana); Adagio, Op. 68, No. 5, Forest Calm (Dvorak); Suite, No. 1, in F, Op. 43 (Tchaikovsky); Variations on a Rococo Theme, Op. 33 (Tchaikovsky); Old Dance Music. **11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**
GOTEBORG.—See **Stockholm.**
GRAZ.—See **Vienna.**
HAMAR.—See **Oslo.**

MARCH 24th FRIDAY *continued*

HAMBURG

Call ha (in Morse), **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres,** and **Kiel, 232.2 metres.**—**4.55 p.m.**, Orchestral and Choral Concert, conducted by Klara Sasse-Leemann (Soprano). **5.50**, Exchange and Market Prices. **6.0**, Talk: German Race Origins. **6.25**, Weather. **6.30** (from **Bremen**), Concerto in D for Flute (Mozart). **7.0**, Der Strom—Drama in Three Acts (Max Halbe). **8.25**, Recital of German Folk Songs by the Choir of St. Michaelis. **9.15**, Time, Weather, News Sports and Police Notes. **9.35**, Topical Talk. **9.45**, Cabaret Music on Gramophone Records. In an interval at **10.20**, Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW.; and **DANZIG, 453.2 metres.**—**12.5 p.m.**, Light Music on Gramophone Records. In an interval at **12.20**, News. **1.30** (from **Danzig**), Exchange and Market Prices. **2.0**, Agricultural Prices and Exchange Rates. **2.30**, Programme for Children. **3.0**, Talk for Women. **3.30**, See **Leipzig. 4.30**, Book Review. **4.50**, Talk on Forestry. **5.15**, Agricultural Prices. **5.20**, Ice Report. **5.30**, Recital of Italian Arias and Russian Songs by Serge Gargarin: Vergin tutto amor (Durante); Selve amiche (Caldara); Lasciatemi morire (Monteverde); Annanni del pensier (Händel); Memories of Love (Glinka); Russian Folk Song (Mussorgsky); On the Hills of Georgia (Rimsky-Korsakov); The Statue in Tsarskoe Selo (Cui); All things pass (Rachmaninov). **6.0** (from **Danzig**), French Lesson. **6.30**, Talk on the Author, Ernst Wiechert. **7.0**, Weather and News. **7.5**, Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky. Soloist, Else Becker-Stoller (Pianoforte); The Doves' Wedding, from The Birds (Braunfels); Concerto in A for Pianoforte and Orchestra (Mozart); Three Symphonic Sketches, La Mer (Debussy); Prelude to Der Rubin (d'Albert). **8.20** (from **Danzig**), Unfamiliar Works of Friedrich Hebbel—A Literary Radio Sequence. **9.20**, Weather and News.

HILVERSUM

Announced **HUIZEN, 296.1 metres;** 20 kW. (7 kW. up to **4.40 p.m.**),—**11.55 a.m.** till Close Down. Programme of the Catholic Radio Society (K.R.O.). **11.55**, Concert by the K.R.O. Sextet. **1.40 p.m.**, Light Music on Gramophone Records. **2.40**, Organ Recital by G. Venderbos: Dorische Toccata (Bach); Intermezzo from the Sixth Symphony (Widor); Symphonic Piece (Tournemire); Finale from the First Symphony (Vierne); Cantabile (Nieland); Pastorale (Nieland); Sonata da Chiesa (Andriessen); Toccata (Andriessen). **3.40**, Song and Pianoforte Recital by Mme. E. Jaspers Vos and Mme. J. de Mul (Pianoforte); Pianoforte Solos: (a) Hungarian Song, Op. 27 (Dupont), (b) Polonaise, Op. 26, No. 1 (Chopin); Songs: (a) Aria from Der Tode Jesu (Graun), (b) Aria from Julius Caesar (Händel), (c) Song from Les Beatitudes (Franck); Pianoforte Solos: (a) Dornröschen (Bendel), (b) Ballad, Op. 23, No. 1 (Chopin); Songs: (a) Aria from A Masked Ball (Verdi), (b) Aria from La Bohème (Puccini), (c) Aria from Madame Butterfly (Puccini). **4.40**, Gardening Talk. **5.10**, Organ Recital by A. Dreissen. **6.10**, Talk: The Agricultural Crisis. **6.40**, Light Music on Gramophone Records. **6.50**, Talk. **7.10**, Police Notes. **7.25**, Concert by the K.R.O. Orchestra, conducted by Johan Gerritsen; Soloist, Rosa Spier (Harp): Freiheitsjubel (Blankenburg); Rakoczy Overture (Keler-Béla); Strandidyll (Fetras); By the Blue Hawaiian Waters (Ketelbey); Fantasia (Dubois). **8.5**, Dramatic Programme. **8.25**, News Bulletin. **8.30**, Concert by the K.R.O. Orchestra, conducted by Johan Gerritsen: Selection from Die Königskinder (Humperdinck); Selection from The Mastersingers (Wagner); Selection from Die toten Augen (d'Albert). **9.10**, Harp Solos by Rosa Spier: Autumn (Thomas); Schubert Fantasia (Trneeck). **9.30**, Orchestral Concert (contd.): Overture, Frau Luna (Lincke); Notenregen (Urbach). **9.55**, Dramatic Programme. **10.25**, Orchestral Concert (contd.): Marienwalzer (Bayer); March, Schönfeld (Ziehrer). **10.40**, News Bulletin. **10.45**, Relay from the Hotel Hollandais, The Hague. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW.—**11.40 a.m. to 3.40 p.m.**, Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.40**, Time Signal. **11.41**, Concert by the Wireless Orchestra, conducted by Nico Treep. In the intervals, Variety Music on Gramophone Records. **1.40 p.m.**, Recitations. **2.10**, Concert (contd.). **2.40**, Light Music on Gramophone Records. **3.40 to 7.40**, Programme of the Workers' Radio Society (V.A.R.A.). **3.40**, Concert by the Little V.A.R.A. Orchestra, conducted by F. Duchant: La Marsellaise (de l' Isle-Rennes); Selection from The Vagabond King (Friml); Meditation (Gounod); Gavotte (Gossec); Scènes champêtres (Mouton); Sélection from Gri-Gri (Lincke). **4.30**, Programme for Children. **5.10**, Organ Recital by Johan Jong. **5.55**, Concert by De Notenkrakers, conducted by D. Wins: Was die Donau erzählt (Morena); Russian Rhapsody (Michaels); Baci al Buio (de Micheli); Hungarian Dance (Brahms); Twilight (Bianco); Stesky (Lebert); Sonja (Partos); Mariska (Lehár). **6.40**, Talk: The U.S.S.R. **7.0**, Concert by De Fliereffluiters, conducted by F. Tiggers: Soloist: J. Lammen (Bass). **7.40 to 10.40**, Programme of the Liberal Protestant Radio Society (V.P.R.O.). **7.40**, Religious Address. **8.10**, Viola Recital by C. Kint. In the interval at **8.40**, Talk. **9.40**, News Bulletin. **9.55**, Religious Address. **10.25**, Gramophone Records. **10.40**, V.A.R.A. Programme: Light Music on Gramophone Records. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.0 p.m.**, A Musical Analysis of Birds' Songs. **6.15**, Announcements and Gramophone Records. **6.25**, Sports Notes. **6.30 to 10.0**, See **Warsaw. 10.0**, Answers to Correspondents in French.

KAUNAS

1,935 metres; 7 kW.—**6.0 p.m.**, Time Signal, Weather Forecast and News Bulletin. **6.30**, Concert. **7.10**, Talk on Vegetarianism. **7.30**, Variety Programme. **7.50**, Talk: The Jews in Lithuania. **8.10**, Concert. **8.40**, Sports Notes. **8.50**, Concert of Light Music. **9.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres; 40 kW.; and **HELSINKI, 368.1 metres.**—**6.5 p.m.**, Symphony Concert, relayed from the University, Helsinki. Soloist, Kaila Mitzel (Violin). Symphony No. 8 (Miaskovsky); Concerto for Violin (Brahms); Okon Fuoko (Madetoja). **7.45**, News in Finnish and Swedish, and Close Down.

LANGENBERG

473 metres; 60 kW.—**12 Noon,** Concert, conducted by Eysoldt: Friedensglocken-Marsch (Urbach); Overture, Vivat Academia (Zimmer); Selection from Czar and Carpenter (Lortzing); Der sterbende Schwan (Spies); Suite, Le Réveil des Fleurs (Drigo); Canzonetta and Minuet (Boccherini); Overture to an Operetta (Lincke); Selection from Die Kaiserin (Fall). In the interval at **1.0 p.m.**, News. **1.30**, Sponsored Programme with Gramophone Records. **2.30**, Exchange and Time Signal. **2.50**, Programme for Children. **3.20**, Jack and John, Ltd.—A Modern Fairy Play for Children (Josef Otto, Music by Hans Ebert). **4.0**, Concert, conducted by Eysoldt: Overture, Die Abreise (d'Albert); Andante from the Sonata in F Minor (Brahms); Fantasia, From the Old World and the New (Dvorak); Bauern-Suite (Ailbout); Liebes-Romanze (Schmalstich); Minuet (Sternberg); Selection from Der Tenor der Herzogin (Künnicke). **5.20**, English Lesson. **5.40**, Weather, Time, Exchange, and Sports Notes. **5.50**, Talk: Travelling in the South. **6.10**, Talk on Social Politics. **6.30**, Books on Industry and Society. **6.55**, First General News. **7.0**, Concert of German Opera Music, conducted by Wolf: Melody and March from Die Folknuger (Kretschner); Overture, Euryanthe (Weber); Selection from Undine (Lortzing); Helmsman's Song and Sailors' Chorus from The Flying Dutchman (Wagner); Selection from Hansel and Gretel (Humperdinck). **7.45**, Ruhrland—Concert by Ruhr Miners' Choirs and Soloists. **9.5**, News and Sports Notes. Talk on the Industry of the Ruhr, in an interval. **9.20**, Cantata for Mixed Choir, Baritone and Orchestra to Text by Stefan George (Wilhelm Maler); The Station Chamber Orchestra and Choir, conducted by Zimmermann; Soloist: Wocke (Baritone). **10.0**, Serenade from **Frankfurt. 11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **DRESDEN, 319 metres.**—**11.5 a.m.**, Orchestral Concert, by the Unemployed Musicians' Orchestra of Dresden, conducted by Kurt John. In an interval at **12 Noon,** News, Weather and Time. **1.0 p.m.**, Art Review. **1.30**, Labour Exchange Report. **2.15**, Talk for Country Women. **2.35**, Exchange and Market Prices. **3.0**, Talk: Salamanders and other Reptiles. **3.30**, Concert by the Orchestra of the Friedrich-Theater, Dessau, conducted by Gustav Mannebeck. Overture, The Taming of the Shrew (Goetz); Serenade, Op. 41 (Wunsch); Selection from The Jewels of the Madonna (Wolf-Ferrari); Waltz, Die Werber (Lanner); Selection from Die goldene Meisterin (Eysler). **4.30**, Weather and Time. **4.50**, Exchange Quotations. **5.0**, A Conducted Tour of the Leipzig Art Industrial Museum. **5.25**, Review of Books about Africa. **5.50**, The Leipzig Station informs its Listeners. **6.0**, Hans Hinkel discusses Hanns Johst. **6.30**, Military Band Concert, conducted by Jahn. March from Kleist's Kätchen von Heilbronn (Hans Pfitzner); Festival Overture (Reinecke); March Potpourri, Die Wache zieht auf (Kochmann); Heroic Overture (Schmidt); Leb' wohl, leb' wohl, Kaserne (Bernhagen); Festliche Turnermusik for Trumpets and Kettledrums (Friedemann); Old Prussian March (Losebede); Offenburg March (Jahn); March, Sag' Kamerad zu mir (Rust). **8.0**, News Bulletin. **8.5**, Economic Notes. **8.10**, Schlageter—Play (Hanns Johst), adapted for Radio by Henrik Herse. **9.15**, News Bulletin. **9.30** (approx), The Teachers and Pupils of Mozart—Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer. Soloist: Hans Grisch (Pianoforte). Military Divertimento (Leopold Mozart); Concerto in A Flat for Pianoforte and Orchestra, Op. 13 (J. N. Hummel); Concerto facile for Pianoforte and String Orchestra (Freystädter). **10.30** (approx.), Close Down

LINZ.—See **Vienna.**

LJUBLJANA

574.7 metres; 7 kW.—**5.30 p.m.**, Reading. **6.0**, French Lesson. **6.30**, Talk on Hygiene. **7.0**, See **Warsaw. 9.0**, Time, News, and Popular Music on Gramophone Records.

LWOW

381 metres; 16 kW.—**6.0 p.m.**, Reading. **6.15**, Miscellaneous Items. **6.30**, See **Warsaw. 10.0** (approx.), Close Down.

LYONS

LA DOUA, 466.8 metres; 1.5 kW.—**7.30 p.m.**, Radio Gazette for Lyons and the South-East. **8.30 p.m.**, Concert of Light Music. **9.0**, Relay from **Toulouse (PTT) (385 metres)**, Esther Music by Moreau, followed by Le Marriage Forcé (Molière), Music by Lully. News after the Programme.

MADRID

ARANJUEZ (EAQ); 30.43 metres; 20 kW.—**10.30**, Concert of Variety Music. **10.45**, Radio Chronicle. **11.0**, Concert (contd.). **11.35**, Answers to Correspondence. **11.40**, Spanish-American Talk. **11.45**, Light Music. **12.0 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—**7.0 p.m.**, Chimes, Exchange Quotations, Programme of Musical Novelties and Variety Items by Ramon Gomez de la Serna. **8.15**, News and Political Review. **8.30 to 9.30**, Interval. **9.30**, Chimes, Time Signal, and Political Review. **9.45** (approx.), An Interview with the Actor Alfonso Tudela, followed by Trio Concert, relayed from the Aeolian Hall: Trio in C Minor, Op. 66 (Mendelssohn); Sonata in D for Violin and Pianoforte (Turina); Trio in D Minor, Op. 32 (Arensky). **11.45**, News Bulletin and Programme Announcements for Listeners Abroad. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**5.15 p.m.**, See **Prague. 6.25**, Concert of Folk Music by a Peasant Band. **7.0**, See **Prague. 9.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**4.30 p.m.**, Popular Music on Gramophone Records. **5.30**, Concert of Music by Ippolitov-Ivanov, relayed from the Conservatoire. **8.0**, Talk in English: How the Soviet Republic supports Agriculture.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres,** and **Nürnberg, 239 metres.**—**4.0 p.m.**, Orchestral Concert, conducted by Richard Planer. Procession and March (Weinwurm); Overture, Stiffelio (Verdi); Waltz from Elfenzauber (Planer); The Volga Boatman (Kubad); Konradin Kreutzer Fantasia (Bohne); Viennese Song Potpourri, Halloh, halloh, hier Wien (Morena). **5.15** (from **Nürnberg**), Talk. **5.35**, Talk: Communications between Bavaria and Austria. **5.55**, Time, Weather and Agricultural Report. **6.5**, Review of Foreign Affairs. **6.25**, Programme by a Verse Speaking Choir. **6.45** (from **Nürnberg**), Orchestral Concert, conducted by Lothar Kraus. Overture, Der Erlenhügel (Kuhlau-Häntsch); Waltz from Countess Maritza (Kálmán); Potpourri, Aus Webers Zauberwald (Urbach); Ballet des parfums (Popy); March, Treueschwur (Kistler). **7.45**, Talk: Weather and Aviation. **8.15**, Das Herzwunder—Musical Miracle Play in One Act (Friedrich Hölzel). **9.20**, Time, Weather, News, Sports Notes and Announcements.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

MARCH 24th **FRIDAY** *continued*

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres**; and **Rjukan, 447.1 metres.**—**4.15 p.m.**, Popular Music on Gramophone Records. **5.0**, French Lesson. **5.20**, Talk: A Visit to a Windmill in Kambo. **6.0**, Announcements, Weather and News. **6.30**, English Lesson. **7.0**, Time Signal. **7.1**, Symphony Concert by the Philharmonic Orchestra, conducted by Odd Grünor Hegge. Soloist, Johan Simonsen (Violin). Symphony in B Flat, Op. 15, No. 2 (Svendsen); Violin Concerto in D Minor, Op. 47 (Sibelius); Fantastic Sketches, Op. 37 (Halvorsen). **8.30**, Foreign Agricultural Report. **8.40**, Weather, News, and Topical Talk. **9.15**, Reading. **9.45** (approx.), Close Down.

ØSTERSUND.—See **Stockholm.**

PALERMO

542 metres; 3 kW.—**7.0 p.m.**, Dopolavoro Notes. Tourist Talk, Agricultural Report, Report of the Royal Geographical Society, and Giornale Radio. **7.20**, Variety Music. **7.30** (in an interval), Time Signal and Announcements. **7.45**, The Pearl Fishers—Opera in Three Acts (Bizet). In the intervals: Talk and Announcements. **9.55**, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.**, Le Journal Parlé. **7.20**, Weather Report. **7.30**, Concert by the Radio Orchestra, conducted by Edouard Flament: Tragic Overture (Brahms); Variations sur une bourrée (Flament); Selection from Lohengrin (Wagner); Waltz, Wine, Woman, and Song (Joh. Strauss). **8.15**, News Bulletin. **8.30**, Musical and Literary Programme for Young People. **9.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**6.45 p.m.**, Journal Parlé. **7.0**, Sponsored Talk. **7.10**, Gramophone Concert of Popular Music. **8.0**, Talk on Music. **8.15**, Interval. **8.30**, Orchestral Concert: Extracts from Operettas (Delibes): (a) Les deux veilles gardes, (b) L'Ecossais de Chatou. **10.30**, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—**6.45 a.m.**, Physical Culture. **7.30**, Weather and Physical Culture (contd.). **7.45**, Gramophone Records: Reflets dans l'eau (Debussy); Allegro appassionato (Saint-Saëns); Melody (Schubert); Guitare (Moszkowsky). **8.0**, Press Review and Weather. **12 Noon**, Hebrew Talk. **12.30 p.m.**, Concert by the Krettly Orchestra; Soloists, M. Rochut (Flute) and Roger Bouliné ('Cello): First Suite from Les Indes galantes (Rameau); Flute Solo, Minuet from Orpheus (Gluck); Serenade (Haydn); Adagio from The Moonlight Sonata (Beethoven); Overture, Preciosa (Weber); Romance (Schumann); Andante and Scherzo from the Second Trio (Mendelssohn); 'Cello Solo, Russian Songs (Lalo); Le rouet d'Omphale (Saint-Saëns); Extracts from the Peer Gynt Suite (Grieg). **2.0**, Exchange and News. **3.45**, Exchange and Market Prices. **4.30**, Elementary English Lesson. **6.10**, Agricultural Talk. **6.30**, Concert by the Krettly Orchestra: Three Dances (German); Venetia (Pascal); Jeux folâtres (Dyck). **6.50**, Notes on Insurance. **7.0**, Talk. **7.20**, Concert by the Krettly Orchestra (contd.): Eternal printemps (Popy); Gondoliers' Song (Mezzacapo); Serenade (Filipneci); La cinquantaine (Marie); Pasquinade (Razigade); French March (Ganne). **8.0**, Readings. **8.30**, News and Weather. **8.40**, Medical Talk. **8.45**, Symphony Concert conducted by Eugène Bigot; Soloist, Robert Krettly (Violin): Overture, The Thieving Magpie (Rossini); Concerto in A for Violin and Orchestra (Mozart); Feuilles, from Images (Aubert); Viennese Rhapsody (Schmitt); Symphony in C (Dukas). In the interval at **9.15**, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**4.0 p.m.**, Music Appreciation Hour—Walter Damrosch Conducting, from **New York. 9.0**, Talk by Dr. Emlyn Jones. **9.10**, Business News. **9.15**, S.A.I. Musicale (Carnegie Tech Chapter). **9.30**, Weather Report. **9.32**, Market Reports. **9.45**, Johnny Muskrat. **9.50**, David Lawrence Dispatch. **9.58**, Programme Announcements. **10.0**, Muskingum College Music Clubs. **10.15**, Programme to be announced. **10.30 to 11.15, New York** Relay. **10.30**, The Singing Lady. **10.45**, Little Orphan Annie. **11.0**, Our Daily Food—George Rector and Judge Gordon. **11.15**, Time Signal. **11.16**, Weather Report. **11.17**, Teaberry Sport Review. **11.22**, Press News Reeler. **11.27**, Strange Facts. **11.29**, Temperature Report. **11.30**, KDKA Orchestra. **11.45 to 3.30 a.m. (Saturday), New York** Relay. **11.45**, To-day's News by Lowell Thomas. **12 Midnight**, Pepsodent Amos 'n' Andy. **12.15 a.m.**, Music is my Hobby. **12.30**, Five Star Theatre—Charlie Chan. **1.0**, Nestle's Programme. **1.30**, Time Signal and Adventures in Health. **1.45**, Howard Thurston, the Magician. **2.0**, The First Nighter. **2.30**, Armour Programme. **3.0**, Dorothy Fields and Jimmy McHugh. **3.15**, Vic and Sade. **3.30**, Bridge School of the Air, by E. Hall Downes. **3.45**, Concert Orchestra, from **New York. 4.0**, Time Signal. **4.1**, Teaberry Sport Review. **4.11**, Temperature Report. **4.12**, Weather Report. **4.13**, KDKA Artist Bulletin. **4.15**, Press Last Minute News Flashes. **4.20**, Cora Williams Hines (Contralto). **4.30**, Smith Ballew and his Orchestra. **4.58**, KDKA Artist Bulletin. **5.0**, Cottou Club Orchestra, from **New York. 5.30**, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.**, See **Brno. 3.55**, Talk: Building Problems. **4.5**, See **Brno. 5.5**, Agricultural Talk. **5.15**, Talk for Workers. **5.25**, News in German. **5.30**, German Transmission: Educational Talk. **6.0**, Chimes. **6.2**, News. **6.10**, Reading. **6.25**, See **Moravská-Ostrava. 7.0**, Introductory Talk to the following Transmission. **7.5**, Concert by the Czech Philharmonic Orchestra, conducted by Alexander Zemlinsky, relayed from the Smetana Concert Hall. Soloist, Maria Müller (Songs). **8.0** (in the interval), Time Signal. **9.0**, Time, News, Announcements, and Sports Notes. **9.15** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW; **LAUSANNE, 680 metres**; and **GENEVA, 760 metres.**—**5.0 p.m.** (from **Geneva**), Reading. **5.15** (from **Geneva**), Interview with Young People. **5.30** (from **Lausanne**), Educational Talk. **6.0**, (from **Geneva**), Weather Forecast, News Bulletin and Announcements. **6.30** (from **Lausanne**), Lesson for Printers. **7.0** (from **Lausanne**), Medical Talk. **7.30** (from **Lausanne**), Recital of Slav Songs and Balalaika Music. **8.10**, See **Schweizerischer Landessender. 8.30** (from **Lausanne**), Mon tailleur—Comedy in One Act (A. Capus). **9.0**, News Bulletin and Weather Forecast. **9.10** (from **Geneva**), Talk: The Work of the League of Nations. **9.30** (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—**8.30 p.m.**, Weather Report. **8.40**, Musical Programme and Announcements. **9.0**, Chimes. **9.2**, News Bulletin. **9.30**, By the Fireside.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres**, and **2RO, 25.4 metres.**—**6.45 a.m.**, Gymnastics. **7.15 to 7.30**, Giornale Radio and Announcements. **11.30**, Weather and Light Music on Gramophone Records. **12 Noon**, Time and Announcements. **12.2 to 1.15 p.m.**, Orchestral Concert. In the interval at **12.30**, Giornale Radio and Exchange. **3.0**, Song Recital by Lotte Lehmann (Soprano) from the Royal Academy of Saint Cecilia. **6.0 (Naples)**, Shipping and Sports Notes. **6.10**, Agricultural and Dopolavoro Notes. **6.20**, Giornale Radio and Announcements. **7.5**, Report of the International Institute of Agriculture in Italian, French, English, German and Spanish. **7.30**, Talk on Sport, Sports Notes, and Tourist Report. **7.45**, Overture, Olympia (Spontini). **8.0** (approx.), La vita m'offre un dono—Comedy in One Act (Vincenzo Bruno). **8.20**, Concert of Henri Dupare Music: Soloist: Margherita Cossa (Soprano); Two Songs: (a) Chanson triste, (b) Phydilé; Nocturne, Aux étoiles; Two Songs: (a) La vie antérieure, (b) Invitation au voyage. **9.0** (approx.), Vocal and Instrumental Concert: Pianoforte Solos: (a) Second Scherzo (Bajardi), (b) Etude No. 3, Op. 10 (Chopin), (c) The Eleventh Hungarian Rhapsody (Liszt); Extract from L'Elisir d'amore (Donizetti). **9.55**, News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres! 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**7.30 p.m. to 12.0 Midnight**, New York Relay. **7.30**, Muted Strings. **7.45**, Three Shades of Blue—Male Trio. **8.0**, Sonata Recital. **8.15**, Famous Loves—Dramatic Programme. **12.0 Midnight**, New Kenmore Hotel Orchestra. **12.15 a.m. (Saturday)**, Stock Reports. **12.30**, Gold Medal Band. **12.45**, The Goldbergs—Comedy Sketch from New York. **1.0**, Cities' Service Concert from New York. **1.30, WGY** Farm Programme. **2.0**, Best Foods Programme from New York. **2.30**, Pond's Programme and Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE, 244.1 metres**; and **BERNE, 245.9 metres.**—**11.28 a.m.**, Time Signal from the Neuchâtel Observatory. **11.30**, Weather and News. **11.40**, Concert of Light Music by the Radio Orchestra. **12.35 p.m.**, Weather and Exchange. **12.45 to 2.30**, Interval. **2.30** (from **Berne**), Music by Roy Fox's Orchestra on Gramophone Records. **3.0** (from **Berne**), Italian and Spanish Folk Songs on Gramophone Records. **3.30** (from **Berne**), Programme for Children. **4.0** (from **Berne**), Popular Music on Gramophone Records. **4.30**, Weather. **4.35 to 5.30**, Interval. **5.30** (from **Berne**), Readings. **6.0**, Time, Weather, Market Prices, Tourist Talk, and Sports Notes. **6.15** (from **Berne**), Talk: Photography in Criminology, Law and Medicine. **6.45** (from **Berne**), Concert of Music by Flotow, conducted by Carl Friedemann. **7.20** (from **Berne**), Es paar Schueh und was dri ghört—Dialect Comedy (Peter Bratschi). **8.10**, Concert of Waltzes by the Radio Orchestra. **8.30**, Weather and News. **8.40** (from **Berne**), Concert of Music in Old Style by the Radio Orchestra: Duets by Liesel Böning-Hugues (Soprano) and Gertrud Meisner (Contralto). **9.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres**; and **Sundsvall, 542 metres.**—**4.5 p.m.**, Programme for Children. **4.25**, Song Recital. **4.45**, Gramophone Records of Light Music. **5.45**, Talk, relayed from **Göteborg. 6.30**, Variety Programme. **7.15**, Weather and News. **7.30**, Old Dance Music. **9.0**, Modern Dance Music. **9.45** (in the interval), Weather and News. **11.15** (approx.), Close Down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.**, Gramophone Concert Faust (Berlioz). **12.45 p.m.**, News. **1.0**, Time and Exchange. **1.5**, Orchestral Concert, conducted by Maurice de Villers: Overture, A Fête at Aranjuez (Demerssemann); Hungarian Rhapsody No. 2 (Liszt); Selection from La Vannina (Bastide); Airs (Albeniz): (a) Prelude, (b) Tango, (c) Malaguena; Spanish Dances (Moszkovsky). **2.0 to 4.45**, Interval. **4.45**, Literary Talk in French. **5.0**, Orchestral Concert of Jazz Music, conducted by Roskam. **6.0**, Trio Concert, relayed from **Lille (265.4 metres). 7.0**, Topical Talk in German. **7.15**, Talk in French: The Employer's Responsibility for Accidents at Work. **7.30**, Time and News. **7.45**, Gramophone Concert: Overture, Oberon (Weber); Till Eulenspiegel's Merry Pranks (R. Strauss); Caprice italien (Tchaikovsky). **8.20**, Lottery Results. **8.30**, Symphony Concert by the Espérance Musical Society, relayed from **Hagondange**: Conductor, Emile Schmitt: Overture, Le roi de Lahore (Massenet); The Unfinished Symphony (Schubert); La plainte du clocher (Balay); Selection from Tannhäuser (Wagner); Waltz from Frau Luna (Lincke); Overture, The Nuremburg Doll (Adam); Spa-Aubade (Strauwen); Selection from The Girl in the Taxi (Gilbert); Les chevaux légers (Parès). In the intervals, Talk on the Espérance Musical Society, and Talk on the Factories at Hagondange. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres, 60 kW.; and **FREIBURG, 570 metres.**—**12.30 p.m.**, Concert from **Langenberg. 1.0**, Concert arranged by the Post Office. **1.30**, Advanced English Lesson. **2.0 to 3.30**, Interval. **3.30** (from **Freiburg**), Talk on Helene von Heldburg. **4.0**, Orchestral Concert, relayed from Pforzheim: Overture, Frau Meisterin (Suppé); Ballet Music from Faust (Gounod); Herzwunden (Grieg); Letzter Frühling (Grieg); Selection from Der Rosenkavalier (R. Strauss); Rhapsody No. 1 (Liszt); Suite No. 1 from L'Arlésienne (Bizet); Waltz, Künstlerleben (Joh. Strauss). **5.15**, Time, Weather, and Agricultural Notes. **5.25**, Talk: Schools on the Heuberg. **5.50**, Medical Talk. **6.15** (from **Freiburg**), Talk: Walks for Sunday. **6.25**, Time and News. **6.30**, Old and New Neapolitan Songs by Hermann Lingor (Tenor) and Leo Hantz (Lute and Guitar): Part One: Seventeenth Century Songs to the Lute (Parisotti): (a) Povero cor, (b) Begli occhi Lucenti, (c) Amor dormiglione. Part Two: Songs to the Guitar: (a) Siciliana (di Capua), (b) Nuttata a'mmare (di Capua), (c) Chitarrata (di Capua), (d) Napule bello (Gregorio). **7.0**, Can Henry Pay—A Radio Play (Martin Dey). **8.0**, Concert from **Frankfurt. 8.30**, Reading. **9.0**, Time, News, Weather, Snow Report, Programme Announcements, and Sports Notes. **9.30**, Programme from **Frankfurt. 11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—**6.0 p.m.**, News Bulletin. **6.15**, Popular Songs. **6.30**, Accordion Solos. **6.45**, Tourist Talk. **7.0**, Military Music. **7.15**, News, Racing Results and Market Prices. **7.25**, Local News. **7.30**, Opera Music. Songs from Il Trovatore (Verdi), Manon (Massenet), and Carmen (Bizet). **7.45**, Symphony Music. **8.15**, Arias from Opera, Othello (Verdi), The Magic Flute (Mozart), and The Prophet (Meyerbeer). **8.30**, Viennese Music. **9.0**, Songs. **9.15**, Concert of Hunting Music. Mass of St. Hubert (Sambrun); Hunting Choruses. **10.0**, Light Music. **10.15**, North African News. **10.30**, Sound Film Music. **10.45**, Argentine Music. **11.0**, Humorous Scenes. **11.15**, Bal Musette. **11.30 to 12 Midnight**, Programme in English by the I.B.C. The I.B.C. Half Hour; Other Days; Little Dolly Daydreams; My old Dutch; Old time Memories; Ma Curly Headed Babby; Lily of Laguna; The Future Mrs. 'Awkins; Vienna Blood. **11.57**, I.B.C. Good-night Melody. **12 Midnight**, Weather and Announcements. **12.5 a.m. (Saturday)**, Balalaika Music and Russian Songs. **12.15**, Dance Music. **12.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**3.0 p.m.**, See **Rome. 5.35 to 6.0**, See **Turin. 6.0**, Light Music on Gramophone Records. **6.20 to 6.35**, See **Turin. 6.35**, Light Music from the Café Dante. **7.0** (approx.) till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres**; and **Florence, 500.8 metres.**—**3.0 p.m.**, See **Rome.** Giornale Radio in the interval. **5.35**, Giornale Radio, Agricultural and Dopolavoro Notes. **6.0**, Gramophone Records of Light Music. **6.20**, Giornale Radio. **6.30**, Time, Announcements, Report of the Royal Geographical Society and Gramophone Records (contd.). **7.0**, Giornale Radio, Weather, and Gramophone Records (contd.). **7.30**, Talk on Sport, followed by Gramophone Records of Variety Music. **8.0**, Symphony Concert conducted by Otto Klemperer. Talk in the interval. **10.0**, Giornale Radio.

VATICAN CITY

19.84 metres (Morning), and **50.26 metres (Evening)**; 10 kW. **10.0 to 10.15 a.m.**, Religious Information in German. **7.0 to 7.15 p.m.**, Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres**; and **Salzburg, 218.5 metres.**—**3.45 p.m.**, Concert by the New Vienna String Quartet. Soloists: Maria Reining (Soprano) and Olga Novakovic (Pianoforte): Five Pianoforte Pieces, Op. 39 (Krenek); Three Pieces from The Twenty-four Melodies (Kauder); Three Pieces from The Six Grecian Rhapsodies (Petyrek); String Quartet in B Flat Minor (Reidinger); Six Love Songs (Reti): (a) Du dem ich angehöre, (b) O blühende Heide, (c) Sinkt nun der Frühlingstraum, (d) Eine Melodie, (e) Denn unsre Liebe hat, (f) Es bebten Berg und Täler. **5.0**, Tourist Report. **5.15**, Report on Workers' Athletics for 1933. **5.30**, Sports Notes. **5.40**, Programme to be announced. **5.55**, Professional Experiences—by Dr. Paul Schebesta. **6.20**, Time, Weather, and Programme Announcements. **6.30**, See **Leipzig. 8.0**, Franz Schmidt Concert by the Vienna Symphony Orchestra, conducted by Oswald Kabasta: Symphony in E; Chaconne in C Sharp. **9.10**, News, Weather, and Announcements. **9.25**, Traffic Report. **9.35**, Jazz Music by the Heinz Branca Band, relayed from the Café Palmhof. Vocal Refrains by Walter Branca.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.**, Time Signal and Bugle Call from St. Mary's Church, Cracow. **11.5**, Programme Announcements. **11.10**, Popular Music on Gramophone Records. **12.20 p.m.**, Weather Forecast. **12.25 to 2.10**, Interval. **2.10**, Announcements. **2.15**, Economic Notes. **2.25**, Aviation Report and Anti-Gas Drill. **2.30**, Maritime and Colonial Affairs. **2.35**, Review of Periodicals. **2.50**, Light Music on Gramophone Records. **3.20**, Educational Talk. **3.40**, Talk on Choreography, relayed from **Poznan (335 metres). 4.0**, Military Band Concert, conducted by S. Radziejowski. In the interval: Announcements. **4.55**, Programme Announcements. **5.0**, Literary Talk: Young Polish Authors. **5.20**, Talk on Current Events. **5.25**, Dance Music and Light Music. **6.0**, Miscellaneous Items. **6.20**, Polish and Foreign Agricultural Report, relayed from **Wilno (563 metres). 6.30**, Reading. **6.45**, Radio Journal. **7.0**, Talk on Music. **7.15**, Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by G. Georgescu. Soloist: C. Szenassy (Violin). Rhapsody No. 2 (Enescu); Symphonic Poem, La procession nocturne (Raband); Violin Concerto in D (Paganini); Fantastic Symphony (Berlioz); Variations on a Theme by Haydn for Violin and Pianoforte (Wieniawski). In the interval: Literary Talk: The Detective Story. **9.40**, Sports Notes. **9.45**, Radio Journal. **9.55**, Aviation Weather Report and Police Notes.

WILNO

563 metres; 16 kW.—**5.55 p.m.**, Miscellaneous Items. **6.0**, Reading. **6.10**, Miscellaneous Announcements. **6.20**, Agricultural Press Review. **6.30 to 6.45**, Reading.

ZURICH.—See **Schweizerischer Landessender.**

SATURDAY

MARCH THE TWENTY-FIFTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Music Hall Vaudeville programme. Scandinavia Military Band music.
LONDON REGIONAL	Children's concert from the Town Hall, Birmingham. A relay from the Empire Theatre, York.
MIDLAND REGIONAL	Plebiscite Orchestral programme, from the Town Hall, Birmingham.
NORTH REGIONAL	Running commentary on the Rugby League semi-final. Relay from the Empire Theatre, York.
WEST REGIONAL	Orchestral concert from the National Museum of Wales.
SCOTTISH REGIONAL	Eye-witness account of the International Hockey Match: Scotland *v.* England, at Peebles.
BELFAST	Syncopated Pianisms and Nigger Melodies.

ABROAD

BERO-MUNSTER	7 p.m. Opera: "Figaro" (Mozart), from Zurich.
BRUSSELS (No. 1)	8 p.m. Wagner concert, from the Conservatoire, Verviers.
COPENHAGEN	7.2 p.m. Handel concert.
PALERMO	7.45 p.m. Operetta: "Der Tanz ins Glück" (Stolz).
PRAGUE	7.30 p.m. Opera: "The Imp of Zvikov," by Novak.
STRASBOURG	5 p.m. Pasdeloup Symphony Concert from Paris.
TOULOUSE	9 p.m. Extract from "The Tales of Hoffmann" (Offenbach).
TURIN	7.30 p.m. Operetta: "Rompicollo."
WARSAW	8.30 p.m. Programme in honour of the Greek National Festival.

ATHLONE

413 metres; 60 kW.; and **CORK, 224.4 metres.—1.30 to 2.0 p.m.,** Time, Weather, Stock Report, and Variety Music on Gramophone Records. **6.15,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Talk on Allotments. **7.45,** Gaelic Talk. **8.0,** Illustrated Lecture Recital by Grace O'Brien: The Influence of Songs on Pianoforte Music. **8.30,** The Station Orchestra. **8.45,** Recital of MacDowell's Songs by E. McKenna (Soprano), with Orchestral accompaniment. **9.0,** Gaelic Songs. **9.15,** The Station Orchestra. **9.30,** Piccolo Solos by Mollie Flynn. **9.45,** Dance Music from the Civil Service Social Club. **10.30,** Time, News, Weather, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**6.0 p.m.,** Programme for Children. **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations and Catalan Grammar Lesson. **8.0,** Light Music on Gramophone Records, followed by News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **9.5,** Concert by the Station Orchestra: March (Fucik); Waltz, Etincelles (Waldteufel); Minuet (Haydn); Overture from Poet and Peasant (Suppé). **9.30,** A Musical Comedy, relayed from **Madrid (EAJ7). 11.0** (in an interval), News Bulletin.

BARI

270 metres; 20 kW.—**7.0 p.m.,** Agricultural Report, Tourist Talk, and Dopolavoro Announcements. **7.20,** Giornale Radio, Sports Notes, and News Bulletin. **7.30,** Time Signal and Announcements. **7.35** (approx.), Concert of Operetta Music and Songs. In the Interval: Art Notes. **9.30,** Popular Music on Gramophone Records. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.8 kW.—**5.55 p.m.,** Time and Programme Announcements. **6.0,** Wireless Talk. **6.30,** Gramophone Records. **6.50,** Introductory Talk to the following Relay. **7.0,** Relay of an Opera from the National Theatre, **Zagreb (307 metres).** In an interval at **8.30** (approx.), News. **10.0,** Light Music from the Ratnicki Dom Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 metres; 60 kW.—**12.45 p.m.,** News. **1.0,** Gramophone Concert from **Berlin (Witzleben). 2.0,** Handwork for Children. **2.30,** Weather and Exchange Quotations. **2.45,** Reading. **3.0,** Talk on the Dramatist Paul Gurk. **3.30,** See **Hamburg. 4.10,** Weekly Review. **5.0,** Brahms Song Recital by Elisabeth Höngen (Contralto): Nicht mehr zu dir zu gehen; Wenn du mir zuweilen lächelst; Unbewegte laue Luft; Liebe und Frühling (I); Spanish Song; Auf dem Schiffe; Meine Lieder; Schwermut; Wehe, so willst du mich wieder. **5.30,** Talk: The Famous German Chemist, Justus Liebig. **5.55,** Weather for Farmers and Announcements. **6.0,** Talk: Religion and Life. **6.30,** A Poem. **6.35,** String Quartet in E Minor (Verdi). **7.5,** See **Berlin (Witzleben). 8.50,** Weather, News and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**3.0 p.m.,** Wind Instrument Concert, conducted by Carl Woitschach. Helenenmarsch (Lübbert); Overture, Light Cavalry (Suppé); Waltz, Morgenblätter (Joh. Strauss); Tee bei Maikäfers (Noack); Selection from La Traviata (Verdi); March, Spring Greetings (Barlow); Overture, Der Waffenschmied (Lortzing); Serenade, Liebesglocken (Woitschach); Potpourri, Rheinischer Sang (Hannemann); Waltz, Flott durchs Leben (Translateur); Selection from Gasparone (Millöcker); March, Durch dick und dünn (Thiele); March, Frohe Jugend (Woitschach). **5.0,** What the Public Likes—A Discussion on Films by the Producer, the Author, the Film Star, and the Filmgoer. **5.30,** Humorous Sketches by Peter Purzelbaum. **5.45,** The Witzleben Station informs its Listeners. . . . **5.50,** Topical Talk. **6.0,** Scenes from Mozart's Life—Operetta in One Act (Lortzing), with Melodies from Mozart's Compositions. **7.0,** Announcement. **7.5,** Radio Revels by the Carl Woitschach Wind Instrument Orchestral, the Dietrich Schrammel Quartet and Soloists. **8.50,** Topical Talk. **9.10,** Weather, News, and Sports Notes. **9.30** (approx.), Dance Music relayed from the Eden Pavilion. **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

304 metres; 13 kW.—**7.40,** Sports Notes. **7.45,** Talk: Electricity and Hygiene. **8.0,** News, Exchange, Market Prices and Lottery Results. **8.5,** English Lesson. **8.20,** News and Weather. **8.30,** Gramophone Concert of Light Music. **9.0,** Main gauche—Comedy in Three Acts (Pierre Veter).

BRATISLAVA

279 metres; 14 kW.—**3.10 p.m.,** Concert of Light Music by the Station Orchestra, conducted by J. Odchazel: Part I—French Music; Part II—Italian Music. **4.10,** See **Prague. 4.20,** Variations and Fugue on a Theme by Händel, Op 24 (Brahms). **4.45,** Talk. **5.0,** Popular Concert by the Station Orchestra, conducted by Nagl. **5.45,** Talk for Housewives. **6.0,** See **Prague. 9.15,** See **Moravská-Ostrava. 10.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

325 metres; 60 kW.; and **GLEIWITZ, 253 metres.—12.5 p.m.,** Weather for Farmers. **12.10,** Popular Music on Gramophone Records. In the interval at **12.45,** Time, Weather, News, and Exchange Quotations. **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Weekly Film Review. **3.0,** Talk: The Siebengebirge Country. **3.30,** Concert from Hamburg. **4.30,** Book Review. **4.50,** Reading. **5.10,** Talk on Silesia. **5.35,** Topical Talk. **6.0,** Gramophone Concert: Hungarian Dance No. 1 (Brahms); Gavotte from Idomeneo (Mozart); Turkish March from The Ruins of Athens (Beethoven); L'Apprenti sorcier (Dukas). **6.30,** Weather for Farmers. **6.35,** Reading. **7.0,** See **Langenberg. 8.50,** Time, Weather, News, Sports Notes, and Programme Announcements. **9.20,** Dance Music relayed from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BRNO

342 metres; 35 kW.—**5.25 p.m.,** German Transmission: News and Review of Gramophone Records. **6.0,** See **Prague. 7.25,** Military Band Concert. **8.10,** Talk: The Brno Dialect and its History. **8.20,** Dance Music. **9.0,** See **Prague. 9.15,** See **Moravská-Ostrava. 10.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 509 metres; 15 kW.—**12 Noon,** Concert, conducted by André Felleman, relayed from the Grand Hotel, **Antwerp. 1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Little Station Orchestra, conducted by P. Leemans: Overture, The Barber of Seville (Rossini); Serenade, Granada (Albéniz); Pianoforte Solo, Castilla (Albéniz); Selection from La Traviata (Verdi); Spanish Dance for Violin (Wigy); Potpourri, Les airs de St. Granier (Salabert). **5.0,** Concert by the Radio Orchestra, conducted by Charles Walpot: March, Sambre et Meuse (Planquette); Overture, The Merry Wives of Windsor (Nicolai); Moss Rose (Bosc); Selection from La Bohème (Puccini-Gauwin); Extase (Ganne); In a Chinese Temple Garden (Ketelbey); Girl (Poot); Le haut-bois soupire (Gervasio); Suite orientale (Popy). **6.0,** Talk: Modelling at Home. **6.15,** Gramophone Records: Romance, La nuit (Rubinstein-Cerné); Si vous l'aviez compris (Denza); The Sacred Hour (Ketelbey); March of the Caucasian Chief (Ivanov). **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans; Italian March (Rousseau); Overture (Raimann); Lamente (Liadov); Bacchanale (Glazunov); Selection from The Flying Dutchman (Wagner); Esquisse No. 2 (Aubert); Tes yeux (Bonincontro); Selection from Sunny (Kern). **7.15,** Talk: Party Politics in Europe—Poland, Hungary, and the Balkans. **7.30,** Review of International Affairs. **8.0,** Concert, conducted by Albert Dupuis, relayed from the Conservatoire, Verviers; Soloists: Mme. Bonavia (Soprano), R. Lapelletrie (Tenor), and M. Froumenty (Bass). Part I.—Wagner Programme: Prelude to Parsifal; Bass Solo: Wotan's Farewell from The Valkyries; Soprano Solos: (a) Elisabeth's Aria from Tannhäuser, (b) Träume; Tenor Solo: Lohengrin's Narrative from Lohengrin; Overture, The Mastersingers. **9.10,** Readings from the Works of Paul Vanderborght. **9.25,** Concert. Part II.—Extracts from The Damnation of Faust—Opera (Berlioz). **10.50,** Le Journal Parlé. **11.0,** Gramophone Dance Music.

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Concert by the Little Station Orchestra, conducted by P. Leemans: Overture, A Life for the Tsar (Glinka); Symphonic Poem, Provence (Fourdrain); Serenade (Godart); Selection from The Tales of Hoffmann (Offenbach); Andante for Violin from the Spanish Symphony (Lalo); Two Italian Songs (Volpatti); Waltz, Es führt kein anderer Weg zur Seligkeit (Heymann); Selection from H.M.S. Pinafore (Sullivan). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert, conducted by André Felleman, relayed from the Grand Hotel, Antwerp. **5.0,** Concert by Mickey's Club Jazz Attraction, conducted by Ludo Langlois. **6.0,** Jewish Music on Gramophone Records: Die fröhliche Nacht in Palestina; Fantasia on Hebrew Songs; Zion (Philippson); Two Dances (Kornienko-Zamulenko): (a) Stambul, (b) Kavkaz. **6.15,** Talk: Alexander the Great. **6.30,** Sonata Recital by Franz Wigy (Violin) and Paul Collaer (Pianoforte); Sonata in E (Bach); Sonata in F (Mozart); Sonata (Debussy). **7.15,** Talk: Youth Hostels in Belgium and Abroad. **7.30,** Agricultural and Gardening Talk. **8.0,** Concert of Sound Film Music by the Radio Orchestra, conducted by Charles Walpot. **9.0,** Music Hall Programme, with the Collaboration of Henri Marchand (Humorist). **10.0,** Le Journal Parlé. **10.10,** Gramophone Records: In the Steppes of Central Asia (Borodin); Overture, Tannhäuser (Wagner). **10.30,** Concert, conducted by Paul Moreaux, relayed from the Memlinc Hall, Antwerp. **12 Midnight** (approx.), Close Down.

BUCHAREST

394 metres; 12 kW.—**4.0 p.m.,** Light Music and Romanian Music by the Sibiceanu Orchestra. **5.0,** News and Time Signal. **5.10,** Talk. **5.25,** Light Music (contd.). **6.0,** Talk: The History of the Romanian Theatre. **6.40,** Light Music on Gramophone Records. **7.0,** Choral and Orchestral Concert, relayed from the Romanian Athenæum. **9.0,** News

BUDAPEST

550 metres; 18.5 kW. Also relayed on **840 metres from 5.15 to 11.0 p.m.—4.0 p.m.,** Trio Concert: Meditation (Bach-Gounod); Blume und Schmetterling (Jaray); Ritorna (Carosio); English Waltz (Hülter); Spanish Serenade (Micheli); Mon coeur (Patiky). **4.30,** Recitations. **5.15,** Recital of Old Hungarian Songs by Szidi Elek, with Cigány Band Accompaniment. **6.15,** Programme by Jenö Heltai. **6.45,** Orchestral Concert: Melody (Tchaikovsky); Frühlingsblumen (Urbach); Vision (Losonczi); Hungarian Dances (Smareglia); Andalusian Romance (Sarasate); Tango lirico (Stephanides). **7.45,** Johann Strauss Concert, by the Budapest Concert Orchestra conducted by Hans Knappertsbusch: Overture, Die Fledermaus; Kusswalzer; Künstlerleben; Accelerationen; Waltz; Freut Euch des Lebens; Kaiserwalzer; Polka, Tritsch-Tratsch; Roses from the South; Wine, Woman and Song; Tales from the Vienna Woods; Polka. **9.45,** Cigány Music relayed from the Café Fenko **11.0** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

281 metres; 6.75 kW.; and **KALUNDBORG, 1,153 metres;** 7.5 kW.—**11.0 a.m. to 1.0 p.m.,** Concert from the Wivex Restaurant. **1.30,** Gramophone Concert: Sigrid Onegin: Du bist die Ruh' (Schubert); Koloman von Pataky: Aria from Don Giovanni (Mozart); Elizabeth Rethberg, Beniamino Gigli and Ezio Pinza: Trio from I Lombardi (Verdi); Yehudi Menuhin: Allegro (Fiocco); Willi Forst: Song from The Prince of Arcady (Stolz); Jenny Howard: We're all together again (Neville); Henry Hall: Leave the Pretty Girls Alone (Robinson); The Singing Sophomores: Chloe (Moret and Kahn). **2.0,** Reading for Schools. **2.30,** Concert by the Radio Orchestra, conducted by Emil Reesen: Entry March of the Boyards (Halvorsen); Second Peer Gynt Suite (Grieg); Fantasia of Danish Songs (arr. Reesen); Two Pieces from Maskarade (Carl Nielsen); Overture, Norma (Bellini); Waltz, Pomona (Waldteufel); Saeterjentens Söndag—arranged for Strings (Ole Bull-Svendsen); Selection from Madame Butterfly (Puccini); Doll Dance (Turina); March, Quand Madelon (Bousquet and Robert). **3.40,** Exchange and Market Prices. **4.50,** Talk: The Work of the Fire Brigade. **5.20,** French Lesson. **5.50,** Weather Report. **6.0,** News Bulletin. **6.15,** Time Signal. **6.30,** Talk on the History of Music—Handel. **7.0,** Town Hall Chimes. **7.2,** Handel Concert, demonstrating the Talk on the History of Music. The Radio Orchestra, conducted by Launy Gröndahl. Soloists: Poul Methling (Song) and Henry Munck (Oboe). Overture to Hercules; Concerto in G Minor for Oboe and Strings; Recitative and Aria from The Messiah; Aria from the Dettingen Te Deum; Chaconne for Harpsichord. **7.40,** Concert of Modern Music by Louis Preil's Instrument Ensemble: Tennis March (Aage Nielsen); Selection from The Flower of Hawaii (Abraham); Ueber die Heide (Lüling); Pianoforte Novelty (Steele). **8.0,** Variety Programme. **9.0,** Pianoforte Solos by Viktor Fischer. **9.15,** Concert by the Louis Preils Instrumental Ensemble. **9.50,** News. **10.5,** Song Recital. **10.25,** Dance Music by the Louis Preil Radio Band. **10.50,** Reading. **11.5,** Dance Music by the Louis Preil Band. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

225.9 metres; 10 kW.—**6.0 to 7.0 p.m.,** Programme in English by the I.B.C.: C. Daniers Walker, B. McNabb, and F. Lamping announcing. **6.0,** Orchestral Concert for Folkestone Listeners: Over the Waves (Rosas); Sous les toits de Paris (Moretti); Gold and Silver (Lehár); In the Night (Tate); Gipsy Moon (Borganov); Vienna, Vienna (Foss); Last Night I dreamed of you (Tallmán); When the Lilac blooms again (Lotter). **6.30,** Concert for Isle of Thanet Listeners: Old-time Memories: Songs: (a) Captain Ginjah, (b) When Father papered the Parlour, (c) The Galloping Major, (d) The Man who broke the Bank at Monte Carlo, (e) Two lovely Black Eyes; The Good Companions. **7.0,** Programme in French. **11.0** till Close Down, Programme in English by the I.B.C. **11.0,** International Broadcasting Club Concert: Tipperary (Judge Williams); Always in my Heart; Please handle with Care; Strange Interlude; Wheezy Anna; I can't believe it's true; Night after Night; The Policeman's Holiday (Ewing). **12 Midnight,** Variety Concert: Crystal Gazing; It's a Great Big Shame; O Zuyder Zee; The Schoolmaster; The Laughing Lover; Moon-

shine; 'Arf a Pint of Ale. **12.30 a.m. (Sunday),** Concert of Popular Songs: Body and Soul (Green); If I had a Talking Picture of you (de Sylva); Sometimes I'm happy (Youmans); I'm a Dreamer (de Sylva); The Desert Song (Romberg); Nobody but you (Edwards); One alone (Romberg); Your Mother and Mine (Edwards). **1.0,** Organ Duets: Because (d'Hardelot); Down South (Myddleton); A Perfect Day (Jacobs-Bond); Marigold (Mayerl); The Whistler and his Dog (Pryor); I'll sing thee Songs of Araby (Clay); Clockwork (Mayerl); Drink to me only with thine Eyes (Calcott). **1.30,** Pianoforte Recital of Popular Songs: Magic Notes (Steininger); Exactly like you (Fields); I like to do things for you (Yellen); My Lover (Yellen); More than you know (Youmans); Swingin' in a Hammock (Seymour); On the Sunny Side of the Street (McHugh); Pianoforte Duet: When the Circus comes to Town (De Rance). **2.0,** Dance Music: Somebody stole my Gal; So ashamed; Here's hoping; Southern Serenade; Strange Interlude; Me minus you; I guess I'll have to change my Plan; Same old Moon; How are you? Leave a little for me; Let's all dance the Polka; How do you do, Mr. Brown? The King's Navee; Love is the Sweetest Thing. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW; **CASSEL, 245.9 metres;** and **TRIER, 259.3 metres.—2.30 p.m.,** Programme for Children. **3.30 to 3.55,** Interval. **3.55,** Economic Notes. **4.0,** Orchestral Concert: March, Aus eigener Kraft (Rupprecht); Waltz, A Summer's Evening (Waldteufel); Jubel-Ouvertüre (Chr. Bach); Procession to the Minster (Wagner); Potpourri, Soldateska (Seidenglanz); Badonviller Marsch (Fürst); March, Heil dur Zukunft (Franfzen). **5.15,** Economic Notes. **5.25,** Topical Talk. **5.50,** Talk: The Regulation of the Prices of hand-made Goods. **6.15,** Time, Announcements, Weather, and Economic Notes. **6.30,** Talk by Paul Alverdes. **6.45,** Anecdotes of Holstein Sailors. **7.5,** Orchestral Concert of Operetta Music. **9.15,** Time, News, Weather and Sports Notes. **9.45,** Dance Music, relayed from **Berlin (Witzleben).** **11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **372 metres;** 1.5 kW. Relayed by **Bremen, 269.8 metres; Flensburg, 227.4 metres; Hanover, 566 metres;** and **Kiel, 232.2 metres.—3.30 p.m.,** Concert by the Hamburg Philharmonic Orchestra, conducted by José Eibenschütz: Overture, Flotte Bursche (Suppé); Rondo all' Ongarese (Haydn); Valse Caprice (Winderstein); Selection from A Masked Ball (Verdi); Potpourri from The Girl in a Taxi (Gilbert); Waltz, Gross Wien (Joh. Strauss). **4.30,** Talk: The Ruhr Invasion of Ten Years Ago. **4.55** (from **Kiel**), Soprano, Tenor and Bass Song Recital, with Recitations. **6.0** (from **Flensburg**), The Working of a Modern Lending Library—Radio Report. **6.25,** Weather Forecast. **6.30,** Concert by the Station Male Voice Quartet. Gerhard Maass (Pianoforte) and Gerhard Gregor (Pianoforte and Accordion). Austrian Cocktail (Kaper); Africa (Hlinak); Der Heiratshandel (Hlinak); Caprice for Accordion, Lachendes Mädchen (Delille); Variations on an Old Theme (Sompek); Gallop, for Accordion, Shh—not so loud! (Barrett); Choral Pieces (Hlinak): (a) Der Mühljung, (b) Das Gespenst; Florette (Heutzschel). **7.5,** Variety Programme from **Berlin (Witzleben).** In an interval: News. **9.0,** Time, Weather, News, Sports and Police Notes. **9.10,** Topical Talk. **9.30,** Dance Music from **Berlin (Witzleben).** **10.20** (in an interval), Jee Report.

HANOVER.—See **Hamburg.**

HEILSBERG

276.5 metres; 60 kW.; and **DANZIG, 453.2 metres.—12.5 p.m.,** Gramophone Concert: Rheinländer Potpourri (Kermbach); Mädel komm mit mir den Rhein entlang (Ostermann); Drum rat ich dir, zieh an den Rhein (Ostermann); Einmal am Rhein (Ostermann); Karnevalsklänge (Hannemann); Cologne Folk Song, Rotsch mer je (Ostermann); Worüm hätt der Pitter dem Heins verzählt (Raymond); Wenn im sonnigen Herbste (Humperdinck); Was ist Wein? Sonnenschein (Walter); Du blonde Lindenwirtin am Rhein (Krausz); Grüss mir die stolzen Burgen am Rhein (Raymond); Beim Lindenwirt in der Drosselgass (Krome); Rheinische Lieder, schöne Frauen heim Wein (Ostermann); Mädel ich bin dir so gut (Enders); Rheinischer Sang (Hannemann); Es liegt eine Krone im grünen Rhein (Hill); Denn nur der Hein mit seiner Frühlichkeit ist schuld daran (Ostermann); Grüsst mir das blonde Kind am Rhein (Heiser). In the interval at **12.20,** News. **1.30,** Programme arranged by the Post Office, with Gramophone Records. **2.0,** Agricultural Prices and Exchange Rates. **2.30** (from **Danzig**), Handwork for Children. **3.0,** See **Berlin (Witzleben).** In the interval at **3.50** (approx.) (from **Danzig**), Talk on Films. **5.45,** Talk. Why should the Experienced Salesman attend a Trade School? **6.10,** Organ Recital by Gerhart Brennsteller, relayed from the Neurossgärtner Kuche; Prelude and Fugue in E (Lübeck); Variations on the Choral, Jesu, meine Freude (Walther); Fantasia and Fugue in C Minor (Bach); Sonata for Oboe and Organ, Op. 38 (Schindler). **7.0,** Weather and News. **7.10,** A Sporting Programme: Professor Thienemann and Egon von Kapherr tell Anecdotes of the Chase; Music by the Station Choir and an Unemployed Orchestra, conducted by Georg Woellner. **9.10,** Weather and News. **9.20** (approx.), Dance Music from **Berlin (Witzleben).**

HILVERSUM

Announced **HUIZEN, 296.1 metres;** 20 kW. (7 kW. up to **4.40 p.m.**).—**11.55 a.m.,** till Close Down, Programme of the Catholic Radio Society. **11.55,** Concert by the Con Brio Trio. **1.40 p.m.,** Programme for Young People. **2.10,** Programme for Children. **3.40,** Light Music on Gramophone Records. **3.50,** Concert by the Jolly Boys. **4.10,** Concert by the K.R.O. Orchestra, conducted by M.v. 't Wout: Sons of the Brave (Bidgood); Overture, The Daughter of the Regiment (Donizetti); Walzerflut (Fetras); Second Slav Rhapsody (Friedemann); Valse des blondes (Ganne); In the Harbour of Port Said (Armandola). **4.55,** Esperanto News. **5.10,** Concert by the Jolly Boys. **5.30,** Orchestral Concert (contd.): Germanenblut (Blankenburg); Overture, Si j'étais roi (Adam); Berlin wie es weint und lacht (Conradi); Unter dem Siegesbanner (Blon). **6.0,** Press Review. **6.20,** Orchestral Concert (contd.): Reminiscences of Cairo (Armandola); Melody (Christ); Ronde d'amour (Chamiuade); Ballet Music from Naila (Delibes); Hoch Heideeksberg (Herzer). **6.50,** Talk on Physics. **7.10,** Police Notes. **7.25,** Sports Talk. **7.40,** Concert by De Geniemuziek Orchestra: Marche lorraine (Ganne); Overture, Das goldene Kreuz (Brüll); Waltz, Gold and Silver (Lehár); In der Spinnstube (Eilenberg); Japonnaiserie (Wittmann); Ballet Suite (Popy); Overture Antigone (Rousseau); Waltz, Kunstlerleben (Joh. Strauss); Selection from Les Cloches de Corneville (Planquette); Entry March of the Gladiators (Fucik-Wittmann). **9.10,** Concert by the K.R.O. Boys, conducted by P. Lustenhouwer. Soloist: J. Mossel (Songs). **9.40,** Recitations. **10.0,** Concert (contd.). **10.40,** News Bulletin. **10.45,** Light Music on Gramophone Records. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 1,875 metres;** 8.5 kW.—Programme of the Workers' Radio Society (V.A.R.A.). **11.40 a.m.,** Concert by De Notenkrakers, conducted by D. Wins: Wien bleibt Wien (Schrammel); Selection from Casanova (Lincke); Russian Lullaby (Krein); Memories of Bitolj (Karastnoyanov); March (Kockert); Schöne Ninon (Kálmán); Backfisch parade (Lincke); Gramophone Records; Die Walzer der Welt (Robrecht); Il bacio (de Michell); Serenade (Moszkowsky); Dort, wo die Walder grün (Brodsky); Congojas (Bianco); Gramophone Records; Liebestätze (Gungl); Das Glück ist trenlos (Doelle); Harlequin (Erwin); Pagan Love Song (arr. Kaper); Es war schön Liebling (Grothe); Prima, prima (Holzmann). **1.40 p.m. to 1.55,** Interval. **1.55,** Light Music on Gramophone Records. **2.30,** Wireless Technical Talk. **2.50,** Concert by the V.A.R.A. Mandoline Orchestra, conducted by J. B. Kok: Barataria March (Sullivan); Parfum de roses (Tellier); Oriental Intermezzo (Döring); Vorrei morire (Tosti); Gramophone Records; Natascha (Margluiès-Holmes); Serenade (Widor); Waltz (Popy); Frühlingskinder (Blankenburg). **3.30,** Illustrated Talk on Music. **4.10,** Talk. **4.30,** Concert by De Fliereffluiters, conducted by H. de Groot. Soloist: A. de Booy (Songs). **5.20,** Literary Talk. **5.40,** Popular Concert by De Notenkrakers, conducted by D. Wins. **5.40,** Song Recital by K. Prnis. **6.25,** Talk. **6.40,** Organ Recital by M. Steyn; Kashmiri Love Song (Woodforde-Finden); Gipsy Song (Boldi); Mooi Volendam (de Groot); I'll do my best to make you happy (Noble). **6.55,** Song Recital (contd.). **7.10,** Organ Recital (contd.): Peter (Nelson); Jonny (Holländer); Donna Vatra (Köpping); Marta (Simons). **7.25,** Talk. **7.40,** Variety Programme. **10.10,** Programme by the V.A.R.A. Dramatic Ensemble, A. de Booy (Songs) and J. Jong (Organ). In the intervals: Light Music on Gramophone Records. **10.40,** News Bulletin. **10.55,** Popular Music on Gramophone Records. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.0 p.m.,** Announcements and Gramophone Records. **6.10,** Talk: The Yellowstone Park, New York. **6.30 to 10.35,** See **Warsaw. 10.35,** Popular Music on Gramophone Records.

KAUNAS

1,935 metres; 7 kW.—**6.0 p.m.,** Time Signal, Weather Forecast and News Bulletin. **6.30,** Concert. **7.10,** Talk on Social Etiquette. **7.30,** Dance Music. **8.30,** Sports Bulletin. **8.40,** Popular Concert. **9.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

1,796 metres, 40 kW.; and **HELSINKI, 368.1 metres.—5.10 p.m.,** Sports Talk. **5.35,** Pianoforte Recital by Ilmari Hannikainen. **6.0,** Talk. **6.20,** Song Recital by Yrjo Ikonen. **6.45,** Dramatic Programme. **7.15,** Orchestral Selection from Faust (Gounod). **7.45,** News in Finnish and Swedish and Close Down.

LANGENBERG

473 metres; 60 kw.—**12 Noon,** Concert, conducted by Wolf: Die Freundschaftsflagge (Blon); Waltz, The Wedding of the Winds (Ball); Overture, Semiramis (Rossini); Suite: Im Zeichen des Rokoko (Ailbout); Selection from Le Tribut de Zamora (Gounod); Spanish Dances (Moszkovsky); Potpourri, Eine Sängerfahrt nach Wien (Silving); Two Songs from Der liebe Augustin (Fall). In the interval at **1.0 p.m.,** News. **1.35,** Week-End Concert on Gramophone Records. **2.30,** Market Prices and Time. **2.50,** Programme for Children. **3.10,** Review of Books on the History of Art. **3.30,** English Reading. **4.0,** Concert from the Reichshof, Elberfeld; The Harmonie Zither Society, conducted by Robert Wolff; Soloists: Egbert Grape (Pianoforte), Carl Eugen Körner (Violin), and Heinz Joachim Körner (Pianoforte): Pianoforte Solos: (a) Papillons, Op. 2 (Schumann), (b) Walzer und Ländler (Schubert); Zither Music: (a) Lebenslust-Ouverture (Haustein), (b) Paraphrase on Es liegt eine Krone im Tiefen Rhein (Ludwig), (c) Ständchen (Kollmaneck); Sonata in E Minor for Violin and Pianoforte (Respighi). **5.15,** Talk on Agriculture. **5.35,** Weather, Time, Exchange, and Sports Notes. **5.45,** Talk on Folk Songs. **6.5,** Talk for Women. **6.25,** Reading of Unpublished Poems—The Works of Anneliese Dieffenbach and Hanns Otto Münsterer. **6.35,** Talk on Economics. **6.55,** First General News. **7.0,** Variety Programme. **9.5,** News and Sports Notes. **9.30,** Serenade, conducted by Wolf. **11.0,** Gramophone Dance Music. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **Dresden, 319 metres.—11.5 a.m.,** Rhenish Humour on Gramophone Records. **12 Noon,** News, Weather and Time. **12.15 p.m.,** Operetta Potpourri on Gramophone Records: Selection from Der arme Jonathan (Millöcker); Potpourri; Fortissimo (Kálmán); Selections from Schön ist die Welt (Lehár); Der liebe Augustin (Fall); Gasparone (Millöcker); Das Lied der Liebe (Joh. Strauss); and Lisellott (Künneke); Exchange Quotations after the Concert. **1.0,** Wireless Hints. **1.10,** Wireless News. **1.30,** Programme for Children. **2.15,** Chess Lesson. **2.45,** Exchange Quotations. **3.0,** Talk on Music. **3.30,** See **Berlin (Witzleben). 5.0,** Legal Talk. **5.30,** German Lesson for Germans. **5.50,** A Modern Dictionary. **6.0,** Discoveries of Pre-historic Remains in Central Germany; Radio Report from the Palaeontological Museum, Halle. **6.30,** Mandoline Concert conducted by Karl Otto: March: Einigkeit (Blankenburg); Waltz (Sartori); Mazurka (Brunetti); March: Welten stürmer (Blankenburg). **7.0,** See **Langenberg. 9.5,** News Bulletin. **9.30** (approx.), Dance Music Relay. **11.0** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

574.7 metres; 25 kW.—**4.30 p.m.,** Light Music on Gramophone Records. **7.0,** An Opera, relayed from **Zagreb (307 metres). 9.30,** Time, News, and Light Music on Gramophone Records.

LWOW

381 metres; 16 kW.—**5.55 p.m.,** Talk. **6.10,** Miscellaneous Items. **6.30,** See **Warsaw. 11.0** (approx.), Close Down.

LYONS

LA DOUA, 465.8 metres; 1.5 kW.—**7.0 p.m.,** Request Gramophone Records. **7.30,** Radio Gazette for Lyons and the South-East. **8.30,** Les plus beaux yeux du monde (Jean Sarment)—relayed from the Salle Molière. News after the Programme.

MADRID

ARANJUEZ, EAQ, 30.43 metres; 20 kW.—**6.0 to 8.0 p.m.,** Programme for Listeners in the Canary Islands, Guinea, and America. **6.0 p.m.,** Concert of Popular Music and Spanish Music. **7.15,** Talk. **7.30,** Light Music. **8.0 to 10.30,** Interval. **10.30,** Variety Concert. **10.45,** Radio Chronicle. **11.0,** Variety Concert (contd.). **11.35,** Talk. **11.40,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange, and Request Gramophone Records. **8.15,** News Bulletin. **8.30 to 9.0,** Interval. **9.0,** Linguaphone English Lesson. **9.30,** Chimes, Time, and Transmission of a Musical Comedy. **11.45,** News. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**5.25 p.m.,** Impressionism in Songs: Recital by M. Zapletalova with Introductory Talk; Under the Snow (Novak); The Lakes (Novak); Desert Park (Kunc); The Swan (Kricka); Two Songs (Kvapil); On Shore (Stepan); The Green (Jirak). **6.0,** See **Prague. 9.15,** A Radio Film. **10.30** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**4.25 p.m.,** The Sleeping Beauty—Ballet (Tchaikovsky), relayed from the Grand Theatre. **8.0,** Talk in French: How the Soviet Republic Supports Agriculture.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 560 metres,** and **Nürnberg, 239 metres.—3.10 p.m.,** Orchestral Concert, conducted by Erich Kloss. In the interval, Recitations (Walter Bauer). **4.40,** Programme for Young People. **5.25,** Gregorian Chants by members of the Munich Cathedral Choir, conducted by Prof. Ludwig Berberich. **6.0,** Wireless Notes. **6.15,** Wireless Technical Talk. **6.30,** Concert of Folk Music. **8.50,** Variety Programme by Erika von Thellmann, Mariele Schmidt, Ludwig Schmidmeier and Ludwig Kusche (Pianoforte Duets). **9.20,** Time, Weather, News and Sports Notes. **9.45,** Serenade. **11.0** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

1,083 metres; 60 kW. Relayed by **Fredrikstad, 365.8 metres; Hamar, 574.7 metres; Notodden, 447.1 metres; Porsgrund, 453.2 metres;** and **Rjukan, 447.1 metres.—3.15 p.m.,** Light Orchestral Concert relayed from the Continental Hotel. **4.15,** Programme for Children. **5.15,** Song and Hardanger Fiddle Recital of National Music. **5.45,** Economic Talk. **6.0,** Announcements, Weather and News. **6.30,** Talk: The Importance of Good Teeth. **7.0,** Time Signal. **7.1,** Concert by the Station Orchestra, conducted by Hugo Kramm. Extracts from (a) The Gipsy Baron (Joh. Strauss), (b) The Circus Princess (Kálmán); Dance Suite (Manfred). **8.20,** Talk. **8.40,** Weather, News and Topical Talk **9.15,** Popular Dance Music. **9.45,** Dance Music on Gramophone Records. **11.0** (approx.) Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

542 metres; 3 kW.—**7.0 p.m.,** Dopolavoro Notes, Tourist Talk, Agricultural Report, and Giornale Radio. **7.20,** Sports Notes. **7.30,** Time Signal and Announcements. **7.35,** Light Music on Gramophone Records. **7.45,** Der Tanz ins Glück (Stolz)—Operetta in Three Acts (Stolz). In the intervals: Book Review and Announcements. **9.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals). **5.45 p.m.,** Le Journal Parlé. **7.20,** Weather Report. **7.30,** Two Plays (Molière): (a) L'amour médecin, with Music by Lully, (b) La jalousie de Barbouillé. **9.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Answers to Correspondents. **7.5,** Gramophone Concert of Variety Music. **8.0,** Talk: The Event of the Week. **8.5,** Theatre Guide. **8.15,** Interval. **8.30,** Concert of Chamber Music by Louis Dumas. **9.0,** Interval. **9.10,** Dance Music by the Sonora Orchestra, conducted by Fred Hoffmann. **11.0,** Dance Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

MARCH 25th **SATURDAY** *continued*

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kw.—6.45 a.m., Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **9.0,** Concert, relayed from the Conservatoire. **11.30 to 12 Noon,** Interval. **12 Noon,** Concert by the Radio Orchestra: Suite Béarnaise (Becq); Suite, En Bretagne (Rhené-Baton); La Farandole (Dubois); Fantaisie sur des Airs limousins (Rouchaud); French Rondo (Boellmann); Suite, En Norvège (Cognard); A Fête in Seville (Baggers); Catalane (Busser); Song of the Volga Boatmen (arr. Doyen); Rêve douloureux (Akimenko); Bandouriste (Akimenko - Chapelier); Slav Dances (Dvorák); In Naples (Barimont); Javanese Song (de Sevérac); Caravane oriental (Delmas); African Suite (Lacôme). In the intervals at **1.0 p.m.,** Exchange, News, and Weather, and at **1.30,** Exchange. **2.0,** Exchange. **3.0,** Programme for Children. **3.45,** Exchange and Market Prices. **3.50,** Dance Music by the Radio Orchestra. **4.45 to 6.30,** Interval. **6.30,** Market Prices, Weather, and Agricultural Notes. **7.0,** Talk on Science: Explosions. **7.20,** Cookery Talk. **7.45,** Market Prices and News. **8.0,** Variety Programme. **8.30,** News, Weather, and Sports Notes. **8.40,** Review by Dorin. **8.45,** Programme of Songs. In the interval at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA); 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.—7.0 to 10.0 p.m., New York** Relay. **7.0, p.m.,** Metropolitan Opera. **9.0,** Dance Masters. **9.30,** Concert Favourites. **10.0,** Programme to be announced. **10.15,** Hotel Sherman Orchestra, from **New York. 10.30,** Weather Report. **10.32,** Behind the Law—Tales of the Pennsylvania State Police. **10.45,** Little Orphan Annie, from **New York. 11.0,** Programme to be announced. **11.15,** Time Signal. **11.16,** Temperature Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.27,** Strange Facts. **11.29,** Weather Report. **11.30,** Programme to be announced. **11.45,** Izaak Waltou League. **11.59,** Time Signal. **12.0 Midnight,** KDKA Players. **12.30 a.m. (Sunday),** Atkinson String Ensemble. **12.45 to 4.0, New York** Relay. **12.45,** Townsend Murder Mystery. **1.0,** American Taxpayers' League. **1.15,** The Boston Symphony Orchestra. **3.15,** Salon Singers. **3.30,** Cuckoos. **4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.13,** KDKA Artist Bulletin. **4.15,** Press Last Minute News. **4.20,** Messages to Methodist Missionaries. **5.20,** Messages to Dwellers of the Far North

PORSGRUND.—See **Oslo.**

PRAGUE

488.6 metres; 120 kW.—**3.10 p.m.,** See **Bratislava. 4.10,** Talk on Industry. **4.20,** Czech Lesson for Germans and German Lesson for Czechs. **4.50,** Popular Music on Gramophone Records. **5.5,** Agricultural Talk. **5.15,** Talk for Workers. **5.25,** News. **5.30,** German Transmission: Poets Before the Microphone; Hans Watzlik reads from his own Works. **6.0,** Chimes. **6.2,** News. **6.10,** Medical Talk. **6.25,** Programme by Dreman and Balling. **7.25** Introductory Talk to the following Transmission. **7.30,** The Imp of Zvikov: Opera in One Act (Novak). In the interval at **8.0:** Time Signal. **9.0,** Time, News, Announcements and Sports Notes. **9.15,** See **Moravska-Ostrava. 10.30** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 403 metres; 25 kW.; **LAUSANNE, 680 metres;** and **GENEVA, 760 metres.—5.0 p.m.** (from **Geneva**), Scientific Talk. **5.30** (from **Lausanne**), Book Review. **6.0** (from **Lausanne**), Weather Forecast, News Bulletin and Announcements. **6.30** (from **Lausanne**), Talk on Films. **7.0** (from **Geneva**), Cocktail: Recital of Jazz Music on Two Pianofortes. **7.10** (from **Geneva**), French Songs, with a Commentary by M. Harry Marc. **7.25** (from **Geneva**), Introductory Talk to the following Transmission. **7.35** (from **Geneva**), Symphony Concert by the Station Orchestra, conducted by E. Ansermet. Soloist: E. Blanchet (Pianoforte); Symphony No. 6, The Pastoral (Beethoven); Concerto in E Flat (Liszt); Symphony for Wind Instruments (Stravinsky); Three Nocturnes (Debussy): (a) Nuages, (b) Fêtes, (c) Sirènes. **9.0,** News Bulletin and Weather Forecast. **9.10** (from **Geneva**), Talk: The Work of the League of Nations. **9.20** (from **Geneva**), Dance Music by the Broadcasting Serenaders. **10.30** (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—**8.30 p.m.,** Weather Report. **8.40,** Musical Programme and Announcements. **9.0,** Chimes. **9.2,** News Bulletin. **9.30,** Reading. **10.0,** Concert by the Station Quartet, followed by Choral Music on Gramophone Records. After the Programme, Dance Music. **1.0 a.m. (Sunday),** Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 441 metres; 50 kW. Relayed by **Naples, 319 metres,** and **2RO, 25.4 metres.—6.45 a.m.,** Gymnastics. **7.15 to 7.30 a.m.,** Giornale Radio and Announcements. **11.30,** Weather and Gramophone Records of Variety Music. **12 Noon,** Time and Announcements. **12.2 to 1.15 p.m.,** Orchestral Concert: Lena (Culotta); Senza cuore (Raimondo); Melody (Stower); Selection from Turandot (Puccini); Tell me why (Marins); Song (Friml); Selection from Frasquita (Lehar); Sona, chitarra (de Curtis); Melody (West); Gaiezza (Sguazzotti). In the interval from **12.30 to 12.45,** Giornale Radio and Exchange. **3.45,** Programme for Children. **4.0,** Exchange, Announcements, Report of the Royal Geographical Society and Giornale Radio. **4.15,** Reading. **4.30 to 5.15,** Orchestral Concert: Castles in Spain (Sadun); Potpourri of Waltzes (Robrecht); Melody (Liadov); Pianoforte Solo, Caprice (de Bériot); Crinoline (del Meglio); L'onda del lago (Napoli); Pianoforte Solo: Caprice (Longo); Golf (Mascheroni). **6.0 (Naples),** Shipping and Sports Notes. **6.10,** Lesson in Morse. **6.20,** Giornale Radio, Announcements and Light Music on Gramophone Records. **7.45,** Relay from a Theatre. In the intervals, Review of New Books, Announcements and News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.—12 Midnight,** El Tango Romantico, from **New York. 12.15 a.m. (Sunday),** Stock Reports. **12.30,** Lady Fingers (Pianists). **12.45 to 3.0, New York** Relay. **12.45,** The World To-day by James G. McDonald. **1.0,** Viennese Programme. **1.30,** The Economic World To-day. **2.0,** Blue Danube. **2.30,** Oldsmobile Programme—Olsen's Orchestra. **3.0,** Musical Programme, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 459 metres; 60 kW.; **BASLE, 244.1 metres,** and **BERNE, 245.9 metres.—11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40** (from **Berne**), Variety Music on Gramophone Records. **12 Noon** (from **Berne**), Song Recital by Claire Adelmann. **12.10 p.m.** (from **Berne**), Jazz Music by Jimmy Mack and his Boys. **12.40,** Weather and Exchange. **12.45** (from **Berne**), The Listeners' Quarter of an Hour. **1.0** (from **Berne**), Book Review. **1.30** (from **Berne**), Pianoforte Recital of Etudes and Sonatinas by Willy Girsberger, followed by Variety Music on Gramophone Records. **2.0** (from **Berne**), Talk on Athletic Training. **2.20** (from **Berne**), Marches (Frederick the Great), on Gramophone Records. **2.30** (from **Berne**), Talk: How to learn a Trade or Profession. **3.0** (from **Berne**), Folk Dance Music. **3.30** (from **Berne**), Medical Talk. **3.45,** Legal Talk. **4.0,** Weather. **4.5 to 5.30,** Interval. **5.30** (from **Basle**), Programme for Young People. **6.0** (from **Zürich**), Chimes from the Zürich Churches. **6.10,** Time, Weather and Market Prices. **6.15** (from **Basle**), Talk: Wireless Now and in the Past. **6.45** (from **Zürich**), Introductory Talk to the following Relay. **7.0** (from **Zürich**), Figaro—Opera in Four Acts (Mozart). In the interval at **8.20** (approx.), Weather and News. **10.0** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres).—4.5 p.m.,** Reading. **4.30,** Programme for Children. **5.0,** Musical Programme relayed from **Malmö (231 metres). 5.45,** Talk. **6.15,** Weather and News. **6.30,** Recital by Charles Berkel (Violin) and Algot Maquiniud (Pianoforte). **7.0,** St. Joan: Play (George Bernard Shaw). **8.45,** Weather and News. **9.0,** Light Music. **10.0** (approx.), Close down.

STRASBOURG

345 metres; 11.5 kW.—**11.30 a.m.,** Orchestral Concert, conducted by Maurice de Villers: Persian Dance (Guiraud); Overture, The Merry Wives of Windsor (Nicolai); Basque Rhapsody (Pierné); Selection from La Juive (Halévy); Orchestral Suite, A Cruise in the Mediterranean (Jalowicz); Ballet Music from Fatrie (Paladilhe). **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Dance Music on Gramophone Records. **2.0,** Johann Strauss Concert on Gramophone Records: The Blue Danube; Wine, Woman and Song; Morgenblätter; Waltz, Künstlerleben; Tales from the Vienna Woods; Selection from Die Fledermaus; Frühlingsstimmen; Frühlingstraum; Roses from the South. **3.0 to 3.45,** Interval. **3.45,** Talk in French on Brahms. **4.0,** Gramophone Concert of Light Music. **4.45,** Legal Talk in German. **5.0,** Pasdeloup Symphony Concert, relayed from the Théâtre des Champs Elysées, Paris. **7.0,** French Lesson. **7.15,** Talk in German on Gardening. **7.30,** Time Signal and News. **7.45,** Lottery Results. **8.0,** Orchestral Concert, conducted by Maurice de Villers; Soloist, Mme. Pelletier-Sattler (Pianoforte): Overture, Don Giovanni (Mozart); Concerto in E Flat for Pianoforte and Orchestra (Mozart); Scènes bretonnes, Op. 24 (Ropartz); Three Pieces for Pianoforte (Schmitt): (a) En rêvant, (b) Sur l'onde, (c) Tziganiana; Orchestral Suite, Reflets d'Allemagne (Schmitt); Paysages Franciscainsysag (Pierné). **10.0,** Concert, relayed from the Café Moll, Mulhouse; Conductor, Georges Jacquet; Soloist, Georges Raffault ('Cello): Overture, William Tell (Rossini); Valse des fleurs (Tchaikovsky); 'Cello Solos: (a) Intermezzo from Goyescas (Granados), (b) Die Quelle (Schumann); Ballet Music from Sylvia (Delibes); Selection from Les Saltimbanques (Ganne). **11.0,** Quintet Concert, relayed from **Radio-Coloniale (Paris) (25.63 metres);** Selection from Tutti in maschere (Pedrotti); Mandolinata (Paladilhe) Hebrew Song (Tomasi); Passepied (Boreau); Selection from Faust (Gounod); Nadja Czardas (Michiels); Sketch (Aubert); Romance (Aubert); Selection from The Merry Widow (Lehár). **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres, 60 kW.; and **FREIBURG, 570 metres.—12.30 p.m.,** Orchestral Concert, conducted by Gustav Görlich; Soloist: Fritz Lang (Tenor). **1.30,** Time, News, Weather, and Programme Announcements. **1.45,** Jodel and Zither Recital on Gramophone Records. **2.10,** Recital of Old German Songs to the Lute by Hilde Keefer-Bluthardt (Soprano) and Leo Hantz (Lute). **2.30,** See **Frankfurt. 3.30,** Mandoline and Guitar Concert: Frühlingserwachen (Bach); Symphonic Poem, Sonnenwende (Vorpahl); Prisca, from Die Najaden (Rupprecht); Spanish Dance (Ritter); March, Ungarisch Blut (Köhler). **4.0,** Orchestral Concert, conducted by Erich Beck: Königsmarsch (Zamora); Overture Hamlet (Emil Bach); Russian Fantasia, Kamarinskaya (Glinka); Paradies-Walzer (Drescher); Prelude, and Sicilienne from Cavalleria rusticana (Mascagni); Prelude, Chorus and Dance from Das Pensionat (Suppé); Slav March (Tchaikovsky). **4.50,** Time and Sports Notes. **5.5,** Technical Talk: Motor Oils. **5.30,** Talk on Adolf Hitler. **6.0,** Time, News, Weather, and Snow Report. **6.10,** Swabian Folk Songs. **6.35,** Pianoforte Recital by Lydia Hoffmann-Behrendt: Two Etudes from Op. 2 (Prokofiev); Two Etudes from Op. 109 (Weismann); Ten Concert Etudes, Op. 55 (Toch). **7.5,** See **Frankfurt. 9.15,** Time, News, Weather, Snow Report, and Programme Announcements. **9.30,** Gramophone Records of Caruso. **9.45,** Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 385 metres; 8 kW.—**6.0 p.m.,** News Bulletin. **6.15,** Argentine Music. **6.30,** Opéra-Comique Songs. **6.45,** Symphonic Poem: Don Juan (R. Strauss). **7.0,** Accordion Solos. **7.15,** News, Racing Results. **7.25,** Local News. **7.30,** Military Music. **7.45,** Opera Music: Prayer from William Tell (Rossini); Aria from The Tales of Hoffmann (Offenbach); Song from The Huguenots (Meyerbeer). **8.0,** Orchestral Concert. **8.30,** Operetta Music: Songs from Le Comte obligado (Moretti); La Périchole (Offenbach); and Les Cloches de Corneville (Planquette). **8.45,** Argentine Music. **9.0,** Extracts from The Tales of Hoffmann: Operetta (Offenbach); In the interval: Viennese Music. **10.0,** Popular Songs. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Request Concert. **11.30 to 12 Midnight,** Programme in English by the I.B.C. **11.30,** I.B.C. Half Hour: Selection from The Maid of the Mountains (Fraser-Simpson); You will Remember Vienna; Song of the Dawn; Selection from Congress Dances (Heymann); Selection from the Merry Widow (Lehár); Song of the Vagabonds from The Vagabond King (Friml). **11.57,** I.B.C. Goodnight Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Sunday),** Orchestral Music. **12.30** (approx.), Close Down.

TRIESTE

247.7 metres; 10 kW.—**4.10 to 6.0 p.m.,** See **Turin. 6.0,** Light Music on Gramophone Records. **6.20 to 6.35,** See **Turin. 6.35,** Concert of Music by Honegger. **7.0** (approx.) till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.—4.10 to 5.0,** Orchestral Concert, conducted by Ugo Tansini. **5.35,** Giornale Radio, Agricultural and Dopolavoro Notes. **6.0,** Light Music on Gramophone Records. **6.20,** Giornale Radio. **6.30,** Time, Announcements, Tourist Report, and Gramophone Records (contd.). **7.0,** Giornale Radio and Weather. **7.15,** Talk: Events and Problems. **7.30,** Rompicollo—Operetta. In the intervals: Review of New Books, and Announcements. After the Operetta: Giornale Radio and Dance Music from the Rajola, Florence. **10.30** (approx.), Close Down.

VATICAN CITY

19.84 metres (Morning) and **50.26 metres (Evening);** 10 kW.—**10.0 to 10.15 a.m.,** Religious Announcements in Different Languages. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW. Relayed by **Graz, 352.1 metres; Innsbruck, 283 metres; Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.—4.40 p.m.,** Concert by the Vienna Symphony Orchestra conducted by Max Schönherr; Overture, Das verwunschene Schloss (Millöcker); Waltz, Vier Kleeblatten (Jos. Strauss); Dances from Styria (Pachernegg); Selection from Der liebe Augustin (Fall); Waltz, Am Wörthersee (Koschat); Overture, Die Diva (Weinberger). **5.40,** Concert by the Orlov Don Cossacks, conducted by Maxim Orlov; Folk Song, Moscow; Sacred Song; Folk Song, The Cuckoo; Marching Song, Black Hussars; Dolia; Plator March (Cossacks' Battle Song of 1812); Gipsy Romance, A Pair of Black Eyes; On the Road to St. Petersburg; Kasbek; Soldier's Song; Folk Song, Nukanu; Camping Song. **6.30,** The Maxim. **7.35,** Time, Weather, Sports Notes and Programme Announcements. **6.45,** Talk: The East-Asiatic Conflict and the League of Nations. **7.15,** Eine Ballnacht: Operetta in Three Acts (O. Straus). In an interval at **8.45** (approx.), News, Weather and Announcements. **9.30,** Dance Music by the Frank Fox Jazz Band; Vocal Refrains by Emil Petroff.

WARSAW

1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Bugle Call from St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Light Music on Gramophone Records. **12.10 p.m.,** Weather Forecast. **12.15,** Programme for Schools, relayed from **Lwów, (381 metres). 1.0,** Talk on Military Affairs. **1.40 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.25,** Military Information. **2.35,** Reading for Children relayed from **Lwów. 3.0,** Light Music on Gramophone Records. **3.20,** Educational Talk. **3.40,** Talk on Photography: Enlargements. **4.0,** Programme for Invalids relayed from **Lwów. 4.30,** Announcements. **4.40,** Topical Talk. **4.55,** Programme Announcements. **5.0,** Educational Talk. **5.20,** Current Events. **5.25,** Dance Music and Light Music. **6.0,** Miscellaneous Items. **6.20,** Talk on Gardening. **6.30,** Topical Talk. **6.45,** Radio Journal. **7.0,** Concert by the Station Orchestra, conducted by S. Nawrot. Soloist: L. Urstein (Pianoforte). In the Harbour of Port Said (Armandola); Waltz (Elliot); Overture, Der Gascogner (Suppé); The Clock and the Dresden Figures (Ketelbey); Pianoforte Solo: Piece (Lindsay-Theimer); Exotic Suite (Yonton); Waltz, Je t'aime (Waldteufel); Musical Box and Pianola (Antiga); Pianoforte Solo: Die goldene Spieluhr (Krome); On the Banks of the Neva (Meyer-Helmund); Waltz Intermezzo, Ein Ballnachtstraum (Translateur); Mazurka (Wronski). In the interval, Sports Notes and Radio Journal. **8.30,** Programme in honour of the Greek National Festival. **9.5,** Chopin Pianoforte Recital by E. Horodyski. **9.40,** Talk: Film Stars. **9.55,** Aviation Weather Report and Police Notes. **10.0,** Dance Music. In the interval at **10.30,** News for Members of the Polish Polar Expedition.

WILNO

563 metres; 16 kW.—**6.0 p.m.,** Reading. **6.10,** Miscellaneous Announcements. **6.15,** Talk. **6.30,** See **Warsaw. 7.0** Request Programme. **8.0,** Light Orchestral Concert, relayed from **Warsaw. 8.30,** See **Warsaw. 11.0** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

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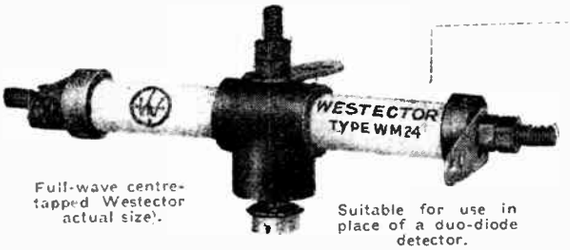
82, York Road, King's Cross, London, N.1.

TYPES AND RATINGS.

Model	Type	Length	Max. input volts	Max. Current output	Price
W. 4	Half-wave	1 ⅛"	24v. peak	0.25 mA.	7 6
W. 6	Half-wave	1 ⅛"	36v. peak	0.25 mA.	7 6
WM. 24	Centre-tap, full-wave	3"	24v. on each side of centre tap ...	0.5 mA.	10 -
WM. 26	Centre-tap, full-wave	3"	36v. on each side of centre tap ...	0.5 mA.	10 -



Full-wave centre-tapped Westector actual size).

Suitable for use in place of a duo-diode detector.

COUPON.

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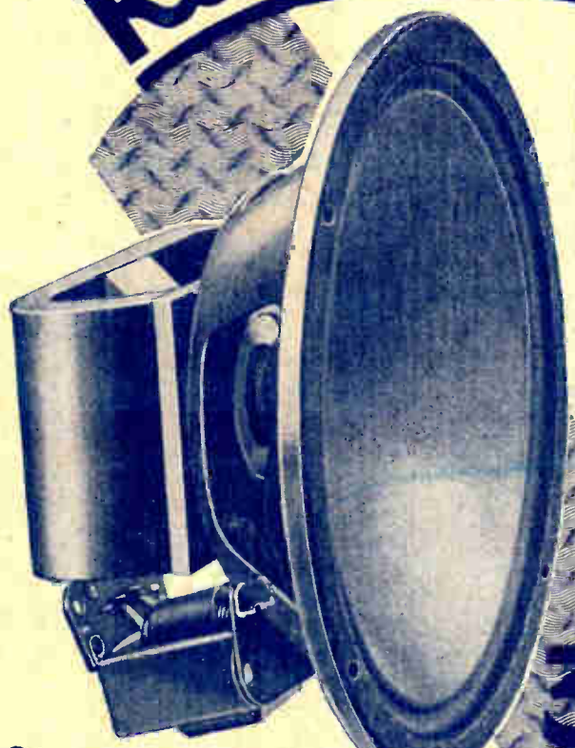

Always keeping pace with Radio's latest development, Ormond now present their already famous Moving Coil Loudspeakers with specially adapted output transformer, for Quiescent Push-Pull Output. The recognised Ormond principle of highest quality at lowest price has been fully maintained in these loudspeakers. The Ormond name is a guarantee that satisfaction is certain.

The ORMOND *Permanent Magnet Moving Coil* CHASSIS

38/6

Cat. No. R/475 C.T. (illustrated above).

In quality and efficiency this model is not inferior to loudspeakers of the most expensive types. An excellent response throughout the frequency range without over-emphasis at the upper end is immediately apparent, a full bass with a brilliance which is highly commendable. Supplied complete with special output transformer. Overall size: diameter 8", depth 4¼".

The ORMOND *Permanent Magnet* MOVING COIL CHASSIS

26/-

Cat. No. R/494 C.T.

Comparison proves it to be far above its price equals. Brilliant tonal quality is ensured by a perfectly balanced frequency response.
Fitted with a pressed steel chassis and moulded cone, with large permanent magnet to give reliability with long life. Complete with special output transformer. Overall size: diameter 8", depth 5¾".

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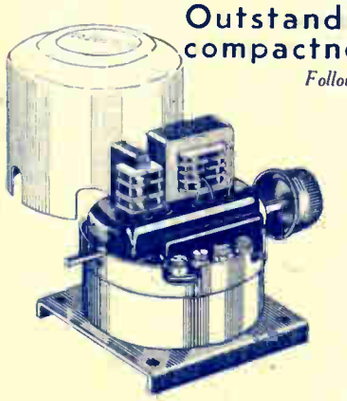
Following Types now available



Type F1, F2. Input Band-pass filter. Constant selectivity, ganging unaffected by variation in aerial reaction, symmetrical resonance curve.

Type F3. Auto transformer inter-valve coupling with reaction, ganging perfectly maintained on both wave ranges by transfer of tapping point in correct turns ratio, practically constant reaction.

Price: Types F1, F2, F3, mounted on sub-base, ganged wave change switches, 50/- per set.

Made under licence from the Patentee—Han. Vogt.

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London Wholesale Depot: 150, King's Cross Road, W.C.1

1/- buys a year's H.T.

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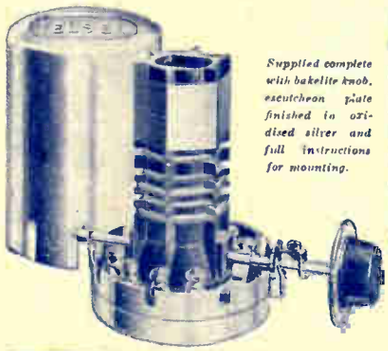
Write for full details to E. K. COLE, LTD., Dept. W.2., Ekco Works, Southend-on-Sea.

TELSEN SCREENED TUNING COILS



Supplied complete with bakelite knob, escutcheon plate finished in oxidised silver and full instructions for mounting.

SUITABLE as aerial coils, or as anode coils, following a S.G. valve, giving selectivity comparable with a well-designed band-pass filter.

Single Screened Coil 8/6

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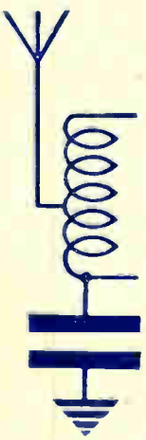
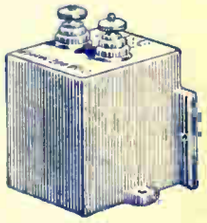


Use a T.C.C. ALL-BRITISH CONDENSER

Here is illustrated a 4 mfd. type No. 61 T.C.C. Paper condenser. The type 61 is made in capacities from 3 to 10 mfds. Prices from 5/0 to 14/0.



THE TELEGRAPH CONDENSER Co., Ltd.
Wales Farm Road, N. Acton, W.3

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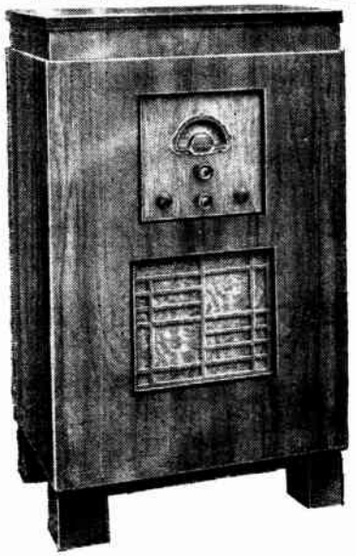

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CONSOLE CABINET

worthy of the Receiver

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Made in London by cabinet makers of the highest rank to the design of an eminent British Artist, the cabinet is in every way worthy of the phenomenal power, magnificent tone, extensive range and superfine selectivity (9 to 10 k.c.) of this model.

Atwater Kent Model 137 is a 7-Valve super-het covering 200 to 2,000 metres. It embodies such refinements as AUTOMATIC VOLUME CONTROL (which definitely eliminates fading) . . . Three-point Tone Switch . . . Large Mains Energised M.C. Loud Speaker, etc., etc. At 32 Gns. it is really wonderful value.

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CONSOLE (as illustrated)	32 Gns.
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Primary 200/250v. 40/100 cycles (screened)
Secondaries: 350-0-350v. 100 m/a.;
4 v.c.t., 2.5 amps.; 4 v.c.t., 6 amps;
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SMOOTHING CHOKE MODEL "E104M."

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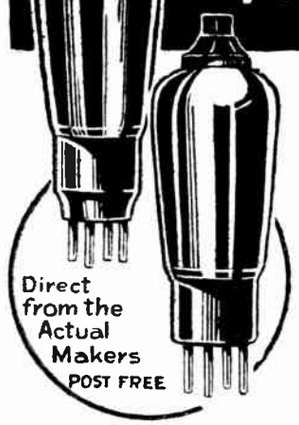

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all in 2v., 4v., or 6v. *Metallised 3d. extra).*

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The Wireless World

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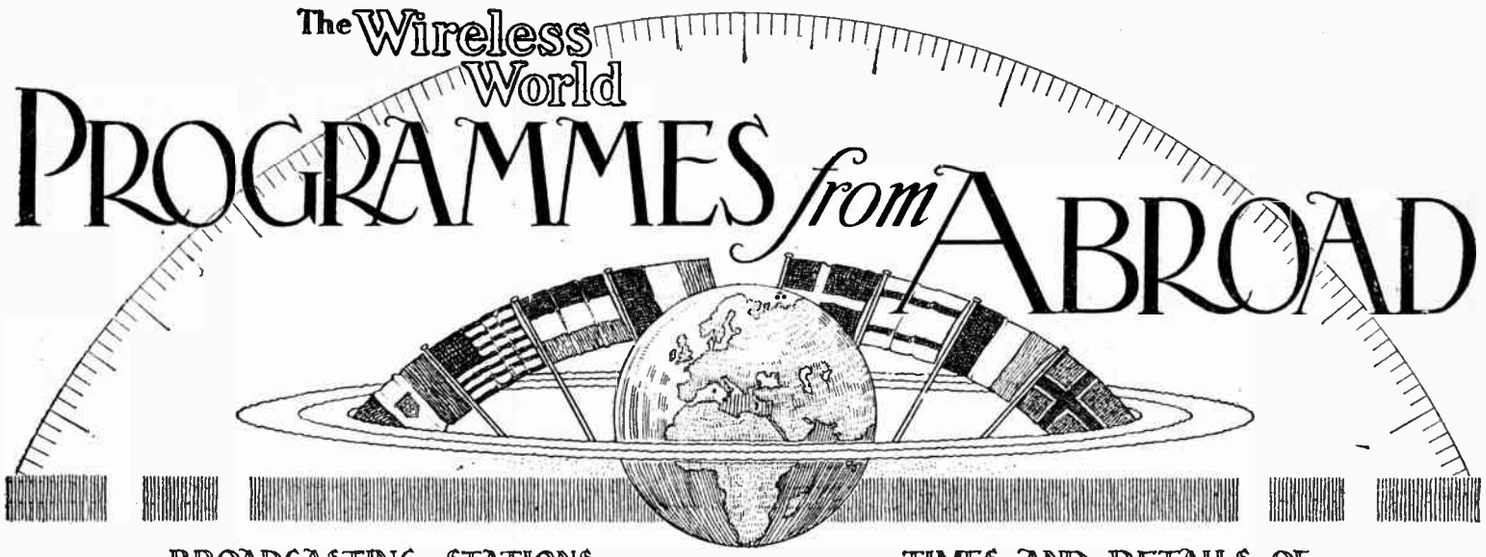

BROADCASTING STATIONS ARRANGED IN ORDER OF WAVELENGTH

TIMES AND DETAILS OF FULL WEEK'S FOREIGN TRANSMISSIONS

Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)	.....
1875	160	8.5	Hilversum (Holland)	.....
1796	167	40	Lahti (Finland)	.....
1725	174	75	Radio Paris, C.F.R.	.....
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (*S.-W. Stn. DJA on* 31.38 *m.*)	.....
1554.4	193	30	Daventry National	.....
1538	195	7	Ankara (Angora) (Turkey)	.....
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)	.....
1446	207.5	13	Eiffel Tower, FL, Paris	.....
1412	212.5	120	Warsaw 1 (Poland)	.....
1380	217.5	100	Novosibirsk, RV6 (Russia)	.....
1354.4	221.5	30	Motala (Sweden). (*Relays Stockholm*)	.....
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)	.....
1275	235	0.5	Tunis-Kasbah (Tunisia)	.....
1230	244	0.6	Boden (Sweden). (*Relays Stockholm*)	.....
1200	250	5	Stamboul (Turkey)	.....
1200	250	21	Reykjavik (Iceland)	.....
1170	256	25	Tashkent, RV11 (Russia)	.....
1154	260	7.5	Kalundborg (Denmark). (*Relays Copenhagen*)	.....
1117	268.5	40	Moscow, Popoff RV58 (Russia)	.....
1083	277	60	Oslo (Norway)	.....
1071	280	35	Tiflis, RV7 (Russia)	.....
1035	290	36	Kiev, RV9 (Russia)	.....
1000	300	100	Moscow (Russia)	.....
938	320	20	Kharkov, RV4 (Russia)	.....
857	350	100	Leningrad (Russia)	.....
840	357	18.5	Budapest (Hungary)	.....
825	363.6	50	Sverdlovsk, RV5 (Russia)	.....
770	389	0.6	Ostersund (Sweden). (*Relays Stockholm*)	.....
760	395	1.3	Geneva (Switzerland). (*Relays Sottens*)	.....
720	416.6	20	Moscow, RV2 (Experimental) (Russia)	.....
690	434.6	1.5	Oulu (Uleaborg) (Finland)	.....
680	441.2	0.6	Lausanne (Switzerland). (*Relays Sottens*)	.....
574.7	522	0.7	Hamar (Norway). (*Relays Oslo*)	.....
574.7	522	7	Ljubljana (Yugoslavia)	.....
569	527	0.25	Freiburg-im-Breisgau (Germany). (*Relay Stn.*)	.....
568.1	528	2	Grenoble (France)	.....
566	530	0.25	Hanover (Germany). (*Relays Hamburg*)	.....
563	533	16	Wilno (Poland). (*Relay Station*)	.....
560	536	0.25	Augsburg (Germany). (*Relays Munich*)	.....
560	536	1.5	Kaiserslauten (Germany). (*Relays Munich*)	.....
558.6	537	1	Tampere (Finland). (*Relays Helsinki*)	.....
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	.....
542	554	10	Sundsvall (Sweden). (*Relays Stockholm*)	.....
537.6	558	3	Palermo (Italy)	.....
533	563	60	Munich (Germany)	.....
525	571	15	Riga (Latvia)	.....
517	580	15	Vienna (Rosenhügen) (Austria)	.....
509	589	15	Brussels No. 1, Velthem (Belgium). (*In French*)	.....
500.8	599	20	Florence, IFI (Italy). (*Relays Turin*)	.....
495.8	605	1.2	Trondheim (Norway)	.....
488.6	614	120	Prague, No. 1 (Czechoslovakia)	.....
480	625	50	North Regional (Manchester)	.....
472.4	635	60	Langenberg (Germany)	.....
467	642	0.4	Aalesund (Norway)	.....
465.8	644	1.5	Lyons la Doua, PTT (France)	.....
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	.....
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (*relays Heilsberg*); Klagenfurt (0.5 kW.) (Austria) (*relays Vienna*); Porsgrund (0.7 kW.) (*relays Oslo*). Tromsö (0.1 kW.) Bodö (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (*relays Stockholm*).	

Metres.	Kc.	kW.	Station.	Tuning Positions.
453.2	662	0.25	Agen (France)	.....
450.3	666	20	Madona (Latvia)	.....
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Rjukan (0.15 kW.), Notodden (0.08 kW.) (Norway) (*relays Oslo*).	.....
441.2	680	50	Rome, IRO. (*S.-W. Station*, 2 *RO on* 25.4 *m.*)	.....
435.4	689	55	Stockholm, SASA (Sweden)	.....
430.4	697	2.5	Belgrade (Yugoslavia)	.....
424.3	707	2	Madrid, EAJ7 (Union Radio). (*After* 7.0 *p.m.*)	.....
424.3	707	100	Moscow, Imini Stalina (Russia)	.....
419.5	715	1.5	Berlin, No. 1, Witzleben (Germany)	.....
416.4	720.5	5	Rabat (Morocco)	.....
413	725	60	Athlone (Irish Free State)	.....
408.7	734	16	Katowitz (Poland)	.....
403.8	743	25	Sottens (Radio Suisse Romande) (*Switzerland*)	.....
398.9	752	25	Midland Regional	.....
394.2	761	12	Bucharest (Roumania)	.....
389.6	770	120	Leipzig (Germany)	.....
385.1	779	8	Toulouse (Radiophonie du Midi) (France)	.....
385.1	779	10	Stalino, RV26 (Russia)	.....
381	788	16	Lwow (Lemburg) (Poland)	.....
376.4	797	50	Scottish Regional (Falkirk)	.....
372.2	806	1.5	Hamburg (Germany)	.....
370.1	810.5	0.8	Radio, LL, Paris	.....
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (*relays Lahti*); Kharkov, RV20 (10 kW.) (Russia).	.....
365.8	821	0.7	Fredriksstad (Norway). (*Relays Oslo*)	.....
364.1	824	1	Bergen (Norway)	.....
363.6	825	13	Algiers (Algeria)	.....
360.6	832	60	Mühlacker (Stuttgart) (Germany)	.....
355.9	843	50	London Regional (Brookmans Park)	.....
352.1	852	7	Graz (Austria). (*Relays Vienna*)	.....
348.8	860	7.6	Barcelona, EAJ1 (Spain)	.....
348.8	860	10	Leningrad, RV70 (Russia)	.....
345.2	869	11.5	Strasbourg, PTT (France)	.....
341.7	878	35	Brno (Brunn) (Czechoslovakia)	.....
338.2	887	15	Brussels II, Velthem (Belgium). (*In Flemish*)	.....
335	896	5	Cadiz (Spain)	.....
334.4	897	1.9	Poznan (Poland)	.....
331.5	905	50	Milan (Italy). (*Relays Turin*)	.....
328.2	914	60	Poste Parisien (France)	.....
325	923	60	Breslau (Germany)	.....
321.9	932	10	Göteborg (Sweden). (*Relays Stockholm*)	.....
318.8	941	0.25	Dresden (Germany). (*Relays Leipzig*)	.....
318.8	941	1.5	Naples, INA (Italy). (*Relays Rome*)	.....
315.8	950	1.6	Marseilles, PTT (France)	.....
312.8	959	1.7	Cracow (Poland)	.....
312.8	959	10	Genoa, IGE (Italy). (*Relays Turin*)	.....
309.9	968	1	Cardiff	.....
307	977	0.7	Radio Vitus (Paris). (*S.-W. Stn. on* 43.75 *m.*)	.....
307	977	0.75	Zagreb (Yugoslavia)	.....
304	986	13	Bordeaux Lafayette, PTT (France)	.....
301.5	995	50	North National (Manchester)	.....
298.8	1004	11	Tallinn (Esthonia)	.....
296.1	1013	20	Huizen (Holland). (*After* 4.40 *p.m.*) (*Exchanges wavelengths with Hilversum every three months.*)	.....
293.5	1022	0.7	Limoges, PTT (France)	.....
293.5	1022	2.6	Kosice (Czechoslovakia)	.....
291	1031	10	Viipuri (Viborg) (Finland). (*Relays Helsinki*)	.....
288.3	1040	50	Scottish National (Falkirk)	.....
288.3	1040	—	British Relays (Bournemouth, Plymouth)	.....
286	1049	0.8	Montpellier (France)	.....

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Metres.	Kc.	kW.	Station.	Tuning Positions.
285.1	1052	0.7	Lyons (Radio-Lyon) (France)	
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
283.6	1058	0.5	Innsbruck (Austria). (*Relays Vienna*)	
282.2	1063	2	Lisbon CT 1AA (Portugal). (*Short-wave Station on 31.25 m.*)	
281.2	1067	0.75	Copenhagen (Denmark)	
278.8	1076	13.5	Bratislava (Czechoslovakia)	
276.5	1085	60	Heilsberg (Germany)	
273.7	1096	7	Turin (Italy)	
271.5	1105	1.3	Rennes, PTT (France)	
269.8	1112	20	Bari (Italy)	
269.8	1112	0.25	Bremen (Germany). (*Relays Hamburg*)	
267.6	1121	1.5	Valencia (Spain)	
265.8	1128.5	1.3	Lille, PTT (France)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
261.5	1147	50	London National (Brookmans Park)	
259.3	1157	17	Frankfurt-a.M. (Germany)	
259.3	1157	2.3	Trier (Germany). (*Relays Frankfurt*)	
257.1	1167	10	Hörby (Sweden). (*Relays Stockholm*)	
255.1	1176	0.7	Toulouse, PTT (France)	
253.1	1185	5	Gleiwitz (Germany). (*Relays Breslau*)	
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)	
249.6	1202	0.8	Juan-les-Pins, Nice (France)	
247.7	1211	10	Trieste (Italy)	
245.9	1220	0.12	Swansea	
245.9	1220		Berne (0.5kW.) (Switzerland)(*relays Beromünster*); Eskilstuna (0.2 kW.), Säffle (0.4 kW.) (Sweden) (*relays Stockholm*); Cassel (0.25 kW.) (Germany) (*relays Frankfurt*); Linz (0.5 kW.) (Austria) (*relays Vienna*); Pietarsaari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (*relays Helsinki*); Schaerbeek (0.1 kW.) (Belgium).	
244.1	1229	0.5	Basle (Switzerland). (*Relays Beromünster*)	
242.3	1238	1	Belfast (N. Ireland)	
240.6	1247	0.5	Stavanger (Norway)	
238.9	1256	2	Nürnberg (Germany). (*Relays Munich*)	
238	1260	1	Nimes (France)	
237.2	1265	3	Bordeaux, Sud-Ouest (France)	
235.5	1274	0.5	Kristiansand (Norway)	
235	1283	1.65	Lodz (Poland). (*Relay Station*)	
232.2	1292	0.25	Kiel (Germany). (*Relays Hamburg*)	
230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhätten).	
227.4	1319	0.5	Flensburg (Germany). (*Relays Hamburg*)	
225.9	1328	10	Fécamp, Radio-Normandie (France)	
224.4	1337	1	Cork (Irish Free State)	
222.9	1346	0.15	Hüdiksvall (Sweden)	
219.9	1365	1.5	Béziers (France)	
218.5	1373	0.2	Plymouth	
218.5	1373	0.5	Salzburg (Austria). (*Relays Vienna*)	
217	1382	0.5	Königsberg (East Prussia) (Germany)	
217	1382	0.25	Karlstad (Sweden)	
215.6	1391	0.1	Brussels, Radio-Chatelineau (Belgium)	
215.6	1391	0.2	Halmstad (Sweden)	
214.3	1400	1	Aberdeen	
211.3	1420	1	Newcastle	
209.8	1430	0.8	Magyarovar, Miskolcz and Pecs (Hungary)	
207	1450	0.15	Boras (Sweden)	
206	1460	0.2	Ornsköldsvik (Sweden)	
204.1	1470	0.2	Gävle (Sweden)	
202.7	1480	0.25	Kristineham (Sweden)	
201.3	1490	0.25	Hälsingborg (Sweden)	
195	1530	0.2	Karlskrona (Sweden)	

PRINCIPAL SHORT-WAVE STATIONS.

(N.B.—Times of Transmission, given in parentheses, are approximate only and represent G.M.T.)

Metres.	Kc.	Call Sign.	Station.	Tuning Positions.
80.0	3,750	2RO	Rome	
70.2	4,273	RW15	Khabarovsk (Russia). (*Daily* 09.00–12.00)	
63.0	4,760	CT3AR	Funchal (Madeira). (*Wed.* 20.30, *Sun.* 14.30)	
62.56	4,795	VE9BY	London, Ont. (Canada). (*Sun.* 06.00)	
62.5	4,800	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 24.00)	
58.3	5,146	PMY	Bandoeng (Java). (*Daily* 12.20 *and* 07.00)	
58.0	5,172	OK1MPT	Prague (Czechoslovakia). (*Tues. and Fri.* 19.30.)	
54.52	5,502	W2XBH	Brooklyn, N.Y. (U.S.A.). (*Relays WGGY*)	
52.7	5,690	FTU	Tananarive, P.T.T. (Madagascar)	
52.5	5,714	HCJB	Quito (Ecuador). (*Daily* 12.30)	
51.22	5,857	XDA	Chapultepec (Mexico)	
50.6	5,930	HKO	Medellin (Colombia)	
50.26	5,970	HVJ	Vatican State, Rome. (*Daily* 19.00)	
50.0	6,000	ZL3ZC	Christchurch (New Zealand). (*Wed.* 03.00, *Sat.* 07.30.)	
50.0	6,000	—	Bucharest (Roumania)	
50.0	6,000	RW59	Moscow	
50.0	6,000	EAR25	Barcelona, Radio Club (Spain). (*Sat.* 20.00)	
49.96	6,005	HRB	Tegucigalpa (Honduras). (*Daily ex. Sun.* 00.00–05.00.)	
49.83	6,020	W9XF	Chicago, Ill. (U.S.A.). (*Relays WENR*)	
49.8	6,023	XEW	Mexico City (Mexico). (*Daily* 01.00)	
49.67	6,042	W2XAL	Cortesville, N.J. (U.S.A.). (*Relays WRNY.*)	
49.6	6,048	W3XAU	Philadelphia, Pa. (U.S.A.). (*Relays WCAU.*)	
49.59	6,050	VE9HX	Halifax (Nova Scotia). (*Relays CHNS*)	
49.58	6,050	GSA	Empire Broadcasting, Zones 1 5	
49.5	6,060	VQ7LO	Nairobi (Kenya Colony). (*Daily* 16.30)	
49.5	6,060	W8XAL	Mason, Ohio (U.S.A.). (*Relays WLW*)	
49.43	6,069	VE9CS	Vancouver, B.C. (Canada)	
49.4	6,072	OXY	Skamleback (Denmark). (*Relays Copenhagen.*)	
49.4	6,072	UOR2	Vienna. (*Tues.* 13.00, *Thurs.* 15.00, *Sat.* 23.00.)	
49.34	6,080	W2XCX	Kearny, N.J. (U.S.A.). (*Relays WOR*)	
49.34	6,080	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL.*)	
49.22	6,095	VE9GW	Bowmanville, Ont. (Canada). (*Daily* 20.00)	
49.2	6,098	ZTJ	Johannesburg (S. Africa). (*Weekdays* 09.00, 11.00 [*Sat.* 11.30] *and* 17.00, *Sun.* 13.00 *and* 17.30.)	
49.18	6,100	W3XAL	Bound Brook, N.Y. (*Relays WJZ*)	
49.1	6,110	VUC	Calcutta, India. (*Daily* 13.00)	
49.02	6,120	W2XE	Long Island, N.Y. (U.S.A.). (*Relays WABC.*)	
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
48.8	6,147	VE9CL	Winnipeg (Canada). (*Daily ex. Sun.* 00.30)	
48.65	6,167	XIF	Mexico City (Mexico)	
48.35	6,205	HKC	Bogota (Colombia). (*Daily* 15.00)	
48.2	6,220	2RO	Rome (Italy)	
48.05	6,243	HKD	Barranquilla (Colombia). (*Weekdays* 23.45)	
48.0	6,250	CN8MC	Casablanca (Morocco). (*Relays Rabat*)	
47.0	6,382	HCJDR	Quito, Ecuador. (*Daily* 01.00)	
46.69	6,425	W3XL	Bound Brook, N.J. (U.S.A.). (*Relays WJZ irregular.*)	
46.67	6,426	VE9BY	London, Ont. (Canada). (*Sat.* 01.00 *Sun.* 02.00.)	
45.38	6,611	REN	Moscow (*Relays Trade Union Stn.*)	
45.0	6,667	FM8KR	Constantine (Algeria). (*Mon. and Fri.* 23.00.)	
45.0	6,667	TGW	Guatemala City (Central America). (*Daily* 03.00.)	
43.75	6,860	—	Radio Vitus, Paris. (*Daily* 20.30)	
43.0	6,970	EAR110	Madrid. (*Tues. and Sat.* 22.30)	
41.7	7,195	VS1AB	Singapore (Malay States). (*Sun. and Wed.* 15.30.)	
41.6	7,211	EAR58	Teneriffe (Radio Club) (Canary Islands)	
41.5	7,230	HB9D	Zurich (Radio Club) (Switzerland). (*1st and 3rd Sun.*).	
41.0	7,320	HSP2	Bangkok (Siam). (*Mon.* 14.00)	
40.3	7,443	HBQ	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.45).	
39.7	7,556	HKF	Bogota (Colombia). (*Westinghouse Labs.*)	
39.4	7,612	X26A	Nuevo Laredo (Mexico). (*Thurs.* 16.00)	
38.7	7,797	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.45.)	
36.92	8,125	PLW	Bandoeng (Java). (*Daily* 10.00–14.00)	
34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 23.00)	
34.68	8,650	VE9BY	London, Ont. (Canada). (*Mon.* 21.00)	
33.50	8,928	TGX	Guatemala City (S. America)	
32.26	9,300	—	Rabat (Morocco). (*Sun.* 21.00)	
31.58	9,500	PRBA	Rio de Janeiro (Brazil). (*Daily* 21.30)	
31.55	9,510	VK3ME	Melbourne (Australia). (*Wed. and Sat.* 10.00.)	
31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5	
31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.) (*Relays WGY*)	
31.38	9,560	DJA	Zeesen (Germany). (*Daily* 13.00)	
31.35	9,570	SRI	Posen (Poland). (*Tues. and Thurs.* 17.30)	
31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.). (*Relays WBZ.*)	
31.3	9,582	W3XAU	Philadelphia, Pa. (U.S.A.). (*Daily ex. Thurs. and Fri.* 21.00.)	
31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.45.)	
31.29	9,585	GSC	Empire Broadcasting, Zone 3	
31.28	9,590	VK2ME	Sydney (Australia). (*Sun.* 10.00)	
31.25	9,598	CTIAA	Lisbon (Portugal). (*Tues. and Fri.* 22.00–24.00.)	
31.10	9,610	HS2PJ	Bangkok (Siam). (*Mon.* 02.00–05.00)	
30.43	9,869	EAQ	Aranjuez (Spain). (*Daily* 23.30, *Sat.* 18.00)	
30.0	10,000	—	Belgrade (Yugoslavia). (*Mon.* 19.00)	
29.3	10,238	TI1NRH	Heredia (Costa Rica). (*Daily* 22.00 *and* 02.00.)	
28.98	10,350	LSX	Buenos Aires (Argentina). (*Daily* 20.30)	
26.83	11,180	CT3AQ	Funchal (Madeira). (*Tues. and Thurs.* 10.30–12.30.)	
25.63	11,700	FYA	Pontoise (France). (*Colonial Stn. E-W, daily* 20.00.)	
25.6	11,720	VE9JR	Winnipeg (Canada). (*Daily ex. Sat. and Sun.* 17.15.)	
25.53	11,750	GSD	Empire Broadcasting, Zones 1 & 4	
25.5	11,760	XDA	Chapultepec (Mexico). (*Daily* 20.00)	
25.4	11,810	VE9GW	Bowmanville (Canada). (*Daily* 18.00)	
25.4	11,810	2RO	Prato Smeraldo, Rome. (16.00 *and* 19.30)	
25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
25.28	11,865	GSE	Empire Broadcasting, Zone 2	
25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
25.2	11,905	FYA	Pontoise (France). (*Colonial Stn. N-S*)	
23.38	12,830	—	Rabat (Morocco). (*Sun.* 11.30)	
20.5	14,630	XDA	Chapultepec (Mexico). (*Daily* 19.30)	
19.9	15,075	TI1NRH	Heredia (Costa Rica). (*Sat., Sun., Mon.* 16.00 *and* 21.00.)	
19.84	15,120	HVJ	Vatican State, Rome. (*Daily* 10.00)	
19.81	15,140	GSF	Empire Broadcasting, Zone 3	
19.73	15,200	DJB	Zeesen (Germany). (*Daily* 13.00–17.00)	
19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.) (*Relays KDKA.*)	
19.68	15,244	FYA	Pontoise (France). (*Colonial Stn. E-W*)	
19.56	15,340	W2XAD	South Schenectady, N.Y. (U.S.A.) (*Daily* 18.00.)	
16.9	17,750	HSP	Bangkok (Siam). (*Sun. and Tues.* 21.00)	
16.88	17,770	GSG	Empire Broadcasting, Zone 2	
16.87	17,780	W3XAL	Bound Brook, N.J. (*Weekdays* 13.00)	
16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
14.47	20,730	LSY	Buenos Aires (Argentina). (*Sun.* 21.00)	
13.97	21,470	GSH	Empire Broadcasting, Zone 3 (*Daylight working.*)	
13.92	21,540	W8XK	East Pittsburg (*Relays KDKA.*)	

FOREIGN SUNDAY PROGRAMMES

MARCH THE TWENTY-SIXTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Salvation Army service from the Congress Hall, Clapton. Orchestral concert from Eastbourne.
LONDON REGIONAL	Sunday orchestral concert.
MIDLAND REGIONAL	Roman Catholic service from St. Chad's Cathedral, Birmingham.
NORTH REGIONAL	Service relayed from Selby Abbey.
WEST REGIONAL	Service from St. Catherine's Church, Pontypridd.
SCOTTISH REGIONAL	Service from St. Mary's Cathedral, Glasgow. Reid orchestral concert.

ABROAD

BERLIN (Konigswusterhausen)	7 p.m. Opera: "La Traviata" (Verdi), from Unter den Linden.
BERO-MUNSTER	7 p.m. Oratorio: "Die heilige Elisabeth" (J. Haas), from Basle.
BORDEAUX-LAFAYETTE	7.15 p.m. Operetta: "La Petit Duc" (Lecocq).
BRUSSELS (No. 2)	7 p.m. Symphony orchestra, conducted by J. Kumps.
BUCHAREST	7 p.m. Opera: "Don Giovanni" (Mozart).
BUDAPEST	6.30 p.m. Operetta: "Endlich allein" (Lehar).
HEILSBERG	8.5 p.m. Oratorio: "Christopher Columbus" (K. F. Noetel).
HILVERSUM	2.10 p.m. Concert conducted by Dr. W. Mengelberg, relayed from Amsterdam.
HUIZEN	7.55 p.m. Extract from "La Bohème," by Puccini.
PALERMO	7.45 p.m. Symphony concert, conducted by A. la R. Parodi.
ROME	7.45 p.m. Operetta: "The Girl in the Taxi" (Gilbert).
STRASBOURG	2 p.m. Symphony concert from Paris. 3.30 p.m. Sacred concert from Palais des Fêtes.

ATHLONE

725 kc/s, 60 kW.; and Cork, 224.4 metres.—**8.30 p.m.**, Time Signal. **8.31**, Pianoforte Recital by Henry Loretto. **9.0**, Concert by the Station Orchestra. **9.30**, A Second Interview: Play (Mitchell) by the Dublin Repertory Company. **10.15**, Soprano Solos by Mme. A. Hafferman. **10.30**, Jack MacGarvey: Entertainer. **10.50**, The Station Orchestra. **11.0**, Time Signal; News; Weather Report and Close Down.

BARCELONA

RADIO-BARCELONA, 860 kc/s, Call EAJ1, 348.8 metres; 8 kW.—**10.0 a.m.**, Chimes from the Cathedral and Weather Forecast. **10.15**, Concert by the Municipal Band relayed from the Palacio de Bellas Artes. **1.0 p.m.**, Light Music on Gramophone Records. **1.30** (in an interval), Theatre Notes. **2.0**, Film Review; followed by Concert by the Station Quartet. **3.0**, Programme for Hospitals and other Benevolent Institutions. **4.0 to 5.30**, Interval. **5.30**, Agricultural Talk in Catalan; followed by Popular Music on Gramophone Records. **6.0**, Dance Music relayed from the Ritz Hotel. **8.0**, Concert by the Station Orchestra. Soloist: Raymonde Liort (Songs). Overture: The Merry Wives of Windsor (Nicolai); Aria from Mirella (Gounod); Song from Carmen (Bizet); Dance of the Merry Mascots (Ketelbey); Nocturne from A Midsummer Night's Dream (Mendelssohn); Aria from The Barber of Seville (Rossini); Air from Louise (Charpentier); Cradle Song (Moskovsky); Polonaise (Dvorák). **9.0**, Extracts from an Opera on Gramophone Records. **10.45**, Chess Lesson. **11.0** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**9.30 a.m.**, Agricultural Notes. **10.5**, Organ Recital from the Church of San Domenico. **10.30**, Bible Reading. **12 Noon**, Giornale Radio. **12.10 to 1.15 p.m.**, Gramophone Concert of Popular Music. In the intervals at **12.55**, Weather; and at **1.0**, Time and Announcements. **4.30 to 5.30**, Gramophone Concert of Variety Music. **7.0**, Sports Notes and Giornale Radio. **7.30**, Time and Announcements. **7.35** (approx.), Variety Concert; Soloists: Anna Molteni (Soprano), Luigi de Grandi (Violin), and Nicola delle Foglie ('Cello); Medieval Suite (Amadei); Soprano Solo: Stornelli marini (Mascagni); Violin Solos: (a) Dirge, La Vergine alla culla (Casco), (b) Polonaise (Dvorak); Soprano Solo from I Capuletti ed i Montecchi (Bellini); Selection from Mephistopheles (Boito); Prelude to I due Foscari (Verdi); Soprano Solo: Capelli d'oro (Oddone); Selection from Le Roi de Lahore (Massenet); Four Lyrics for Soprano (Respighi); 'Cello Solos: (a) Lamentation (Cassadò), (b) Scherzo (Calmbley); Soprano Solo: La zingara (Donizetti); Rural Sketch, Autumn (Romaniello). Announcements in the interval. **9.50**, Dance Music from the Grand Hotel Moderno. **9.55**, News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW. **10.30 a.m. to 1.0 p.m., See Leipzig.** In the interval at **11.55**, Time Signal. **1.0**, Talk for Parents: The Religious Attitude of Children. **1.30**, Animals in the Spring Sunshine—Poems and Tales for Children, with Music by Fritz Steineck. **2.0**, Hermann Claudius reads from his own Poems. **2.30**, Chamber Music for 'Cello; Suite for 'Cello and Pianoforte, Op. 66 (Paul Graener); Nachtstück, Op. 23 (Rezicek); Four Pieces for 'Cello and Pianoforte, Op. 124 (Hugo Kaun): (a) Idyll, (b) Minuet, (c) Waltz, (d) Intermezzo. **3.10**, Talk: Art Centres and Art Treasures of the German Nation—Frederick the Great as a Collector. **3.30**, Concert from **Breslau.** **4.15**, Talk on Winter Relief. **4.35**, Talk: The East Mark and Poznan. **5.0**, Recital of Schumann and Richard Strauss Songs by Enumi Leisner; Four Songs (Schumann): (a) Schöne Wiege meiner Leiden, (b) Der Nussbaum, (c) Mondnacht, (d) Frühlingsnacht; Four Songs (Richard Strauss): (a) Freundliche Vision, (b) Ich trage meine Minne, (c) Wiegenlied, (d) Cäcilie. **5.30**, Talk: Problems of National Education. Concert by a Soldiers' Choir with Readings. **7.0**, La Traviata—Opera in Three Acts (Verdi), relayed from the State Opera House, Unter den Linden. **9.20**, Weather, News and Sports Notes. **9.45**, Weather Report for Shipping. **10.0**, Dance Music from **Berlin (Witzleben).** **11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**10.30 a.m.**, See **Leipzig.** **11.0**, See **Breslau.** **1.0 p.m.**, See **Berlin (Konigs Wusterhausen).** **1.30**, Fairy Tales for Children. **2.0**, Orchestral Concert, conducted by Eugen Sonntag. **3.0**, Second Half of the Hockey Match Germany v. France, from the Preussenplatz, Tempelhof. **3.20**, Concert (contd.): Polonaise (Franz Kullak); Two Pieces (Wilhelm Kienzl): (a) Harfners Abendgesang, (b) Ave in Kloster; Gondoliera (Franz Ries); Flemish Dances (Jan Blockx); Two Pieces (Joh. Strauss): (a) Csardas from Cagliostro, (b) Waltz, Windsorklänge; Overture, Lucullus (Meyer-Helmund). **4.30**, Talk: World Philosophy and Economics. **4.55**, Hermann Unger Song Recital by Tiny Debüser (Soprano), accompanied by the Composer: Two Songs from Liebesklagen, Op. 42: (a) Nach meiner Lieb', (b) Recht wie ein Leichnam; Two Songs from Mutterlieder: (a) Gottvater selber, (b) Die Wolke wird ihm Wiege; Two Songs from Altdeutscher Liederkreis, Op. 14: (a) In meinem Rosengarten, (b) Mariä Wiegenlied. **5.10**, Recitations, Lyrics (Hans Voss). **5.20**, Quintet in A, Op. 114—the Trout (Schubert), for Pianoforte, Violin, Viola, 'Cello, and Double Bass. **6.0**, Topical Talk. **6.25**, The Cosy Corner—by Fried Kiesling and Ulrich Franz Krolop. **6.50**, Sports Notes. **6.55**, Announcements. **7.0**, See **Vienna.** **9.0**, Weather, News, and Sports Notes, followed by Dance Music from the Europa Pavilion. **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

(PTT) 986 kc/s, 304 metres; 13 kW.—**7.0 a.m.**, Review of the Paris Morning Press, relayed from **Paris (Ecole Supérieure), 671 kc/s, 447.1 metres. 11.0**, Concert, relayed from **Paris (Ecole Supérieure). 1.0 p.m.**, Relay from **Paris** or Relay of a Local Festival. **1.30**, Running Commentary on the Côte Basque v. Côte d'Artent Rugby Match—relayed from the Sports Ground. **4.30**, Talk on the History of Bordeaux. **5.30**, Radio Journal relayed from **Paris (Ecole Supérieure). 6.10**, Sports Talk. **6.25**, Talk for Ex-Service Men. **6.40**, Lottery Results. **6.45**, Light Music on Gramophone Records. **7.15**, La Petit Due—Operetta (Lecocq), relayed from the Grand Theatre.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**4.45 p.m.**, Sonata for Pianoforte in B Minor (Bella). **5.20**, Reading. **5.35**, Light Music on Gramophone Records. **5.45**, Programme to be announced. **6.0**, See **Prague. 7.0**, Variety Concert by the Station Orchestra, the Station Jazz Band, the Station Military Band, the Bratislava Schrammel Quartet and Members of the National Theatre. Conductor, F. Dyk. **9.0**, See **Prague. 9.20**, Cigány Band Concert, relayed from the Café Astoria. **10.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc/s, 253 metres.**—**10.0 a.m.** (from **Gleiwitz**), Demonstration of the Upper Silesian Patriotic Societies on the Reichspräsidentenplatz: Fanfare of Trumpets by the Eleventh Cavalry Regiment; Music by the Municipal Fire Brigade Orchestra and the Gleiwitz Choral Society; Address by General von Goering or Vice-Chancellor von Papen. **11.0**, Concert by the Silesian Philharmonic Orchestra, conducted by Franz Marszalek. **1.0 p.m.**, News Bulletin. **1.10**, Talk: Stamp Collecting. **2.15**, Programme for Children. **2.45**, Concert by the Station Orchestra, conducted by Bruno Janz; Soloist, Hansgeorg Wieczorek (Baritone). **4.45**, Appeal for the Silesian Winter Relief Fund. **4.55**, Sports Review. **5.25**, Chamber Music: Quartet for Flute, Violin, Viola, and 'Cello (J. Chr. Bach); Flute Solo with String Quintet and Harpsichord Accompaniment (Frederick the Great); Quartet for Flute, Violin, Viola, and 'Cello (Mozart). **5.55**, Friedrich August Ludwig von der Marwitz Programme, with Introductory Talk. **6.25**, Weather Forecast. **6.30**, See **Stuttgart. 7.30**, See **Munich. 9.0**, Time, Weather, News, Sports Notes, and Programme Announcements. **9.30**, Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 55 kW.—**11.5 a.m.**, Military Band Concert, conducted by J. Hancl. **12.30 to 12.45 p.m.**, Agricultural Talk. **2.30**, See **Prague. 3.0**, See **Moravská-Ostrava. 4.30**, Review of Gramophone Records. **5.0**, German Transmission: Extracts from Die drei Pintos—Opera in Three Acts (Weber, arr. Mahler). **6.0**, See **Prague. 7.0**, See **Bratislava. 8.20**, Symphony Concert by the Station Orchestra, conducted by B. Bakala: Symphony in A (A. Fils); Symphony No. 5 in B (Schubert). **9.0**, See **Prague. 9.20**, See **Bratislava. 10.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**9.0 a.m.**, Gramophone Concert. **10.0**, Concert by the Small Station Orchestra conducted by P. Leemans; Soloists: Douliez (Pianoforte) and Wigy (Violin). **11.0**, Concert by the Mickey's Club Jazz Attraction. **12 Noon**, Journal Parlé. **12.10 p.m.**, Concert conducted by André Felleman relayed from the Grand Hotel, Antwerp. **12.30**, Recitations. **1.40**, Concert (contd.). **4.0**, Concert by the Symphony Orchestra conducted by J. Kumps: Selection from Russian and Ludmilla (Glinka); Zoraluyda (Svendsen); Songs; Petite Suite (Ducasse); Ballet Music from The Cid (Massennet); In the interval, **4.30** (approx.), Football Match Results. **5.0**, Organ Recital by Louis Joos relayed from the Carmelite Church: Toccata in F (Bach); Melody (Guilmant); Reverie (Borodin); Choral (Handel). **5.30**, Programme for Children. **6.0**, Gramophone Records: Berceuse (Rosskam); Extract from La boîte à joujoux (Debussy); L'Eglise paysanne (De Boeck). **6.15**, Religious Address. **6.30**, Wireless Review and Talk on Music. **7.0**, Concert by the Radio Orchestra and the Radio Vocal Quartet: Soloists: M. Durand (Tenor) and M. Steurs (Accordion). **7.45**, Faisons connaître: Sketch (Lauville). **8.0**, Concert (contd.). **9.0**, Journal Parlé. **9.10**, Variety Music on Gramophone Records. **10.0**, Concert by the Penguin Club. **11.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish. **9.0 a.m.**, Concert by the Small Station Orchestra, conducted by P. Leemans. Soloist, M. Wigy (Violin). **10.0**, Gramophone Concert of Classical Music. **11.0**, Concert, relayed from the Grand Hotel, Antwerp. **12 Noon**, Journal Parlé. **12.10**, Concert by Mickey's Club Jazz Attraction, conducted by L. Langlois. **1.0** (approx.), Running Commentary on the International Football Match, France v. Belgium. **4.0**, Concert of Light Music by the Radio Orchestra, conducted by Charles Walpot. In the interval at **4.15** (approx.), Football Results. **5.0**, Gramophone Records. **5.15**, Recitations. **5.30**, Concert by the Small Station Orchestra, conducted by P. Leemans. Soloist, M. Gilman (Flute). Overture, The Grand Duchess of Gerolstein (Offenbach); Legend No. 6 (Dvorák); Suite (Saint-Saëns); Orientale for Flute (Gaubert); Scène d'amour (Sibelius); Ballet Music from Romeo and Juliet (Gounod). **6.15**, Religious Address. **6.30**, Talk on Music. **7.0**, Concert by the Symphony Orchestra, conducted by J. Kumps. In the interval at **7.45**, Recitations. **9.0**, Journal Parlé. **9.10**, Gramophone Concert of Light Music. **9.45**, Concert by the Max Alexys Orchestra, relayed from the Ancienne Belgique. **11.0** (approx.), Close Down.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**9.0 a.m.**, Programme for Workers. **9.30**, Bible Reading. **9.45**, Choral Concert of Sacred Music. **10.0**, Concert of Yugoslav Music by the Ionesco Gaina Orchestra. **11.0**, Light Music on Gramophone Records. In the interval at **11.45**, News and Time Signal. **3.0 p.m.**, Programme for Peasants. **4.0**, Light Music and Roumanian Music by the Jean Marco Orchestra. **5.0**, News and Time Signal. **5.15**, Light Music (contd.). **6.0**, Talk: Romanian Folk Music. **6.20**, Talks on Popular Education and Agricultural Science. **7.0**, Don Giovanni—Opera in Three Acts (Mozart). In the intervals, News.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW. Also relayed on **840 metres** from **6.0 to 11.0 p.m.**—**10.15 a.m.**, Protestant Service, followed by Concert of Russian Music by the Opera House Orchestra conducted by Otto Berg. **1.0 p.m.**, Gramophone Concert of Operatic and Popular Music. **2.0**, Agricultural Talk. **2.45**, Programme for Schools, followed by Harpsichord Recital. **4.0**, Talk. **4.30**, Dance Music from the Café Ostende; Popular Songs by D. Dani. **6.0**, Humorous Talk. **6.30**, Endlich allein — Operetta (Lehar); after the Operetta: Cigány Music from the Café Baross. **10.15**, Dance Music from the Royal Restaurant.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by **Kalundborg, 260 kc/s., 1,153 metres.**—**11.30 a.m.**, Relay of a Young People's Gathering, from the Nicolai Hus. Programme of Music and Addresses. **12.50 p.m.**, Talk in English: The Economic Side of Daily Life. **1.10**, Talk in German. **1.30**, Talk in French. **1.55**, Programme for Children. **2.25**, Orchestral Concert, conducted by Launy Gröndahl, relayed from the **Axelborg** Studio. Soloists: Otto Steenberg and Henry Skjaer (Songs). **4.0**, Divine Service from Christiansborg Castle. **5.20**, Talk: The Peasant in Twentieth Century Literature. **5.50**, Weather and News. **6.15**, Time and Sports Notes. **6.30**, Talk: The Rationalisation of Social Services. **7.0**, Town Hall Chimes. **7.1**, Vocal and Orchestral Concert of Music by Heise and Lange-Müller. **8.10**, The Hansen Family—A Humorous Episode (Jens Locher). **8.25**, Quintet in A for Pianoforte, Violin, Viola, 'Cello, and Double Bass, Op. 114 (Schubert). **9.10**, News Bulletin. **9.20**, Saxophone Solos. **9.35**, Reading (Carl Arctander). **9.55**, Dance Music from the Wivex

Restaurant. In the interval at 11.0, Town Hall Chimes. 11.30 (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11.0 a.m.,** Radio Gazette and News Bulletin. **11.30,** Gramophone Concert of Variety Music. **4.0 to 8.0 p.m.,** Programme in English by the I.B.C., C. Danvers-Walker, B. McNabb, and F. Lamping announcing. (These times are subject to alteration.) **4.0,** Programme for Children. **4.30,** Children's Club Concert. **5.0,** International Broadcasting Club Concert for Glasgow Listeners. Orchestra: Glasgow Highlanders (arr. Dyack); Pianoforte Solo: Hot Scotch; Message from Captain Leonard Plugge, President and Founder of the Club; Songs: (a) Comin' through the Rye, (b) Bella, the belle o' Dunoon; Accordion Solo: The Road to the Isles; Chorus: Ye Banks and Braes; The Bonnie Banks o' Loch Lomond; Scotland's Pride; Sketch: Doon the Clyde; Bagpipe Solo: Eightsome Reel; Songs: (a) Macleod's Galley (Kennedy Fraser), (b) My ain Folk; Orchestra: Potpourri, The Thistle. **6.0,** Celebrity Concert of Gramophone Records; Medley of Songs by Clarice Mayne; Paris stay the same, by Maurice Chevalier; Come Gipsy, from Countess Maritza, by Richard Tauber; Bluebeard, by Wish Wynne; Jolly good Company, by Jack and Claude Hulbert; We just couldn't say good-bye, by Annette Hanshaw; Layton and Johnston Medley. **6.30,** Organ Recital: Waltzland Selection (arr. Stoddon); A Brown Bird singing (Haydn Wood); Song, In love (Friml); Schön Rosmarin (Kreisler); Love's Garden of Roses (Haydn Wood); Broken Dreams (Spitalny); Spirit of America (Zamecnik). **7.0,** Faraday Military Band Half-Hour: The Parade of the Tin Soldiers (Jessel); Electrical transcription of an American Broadcast: Preludium (Järnefelt); Electrical transcription of an American Broadcast; Valse des alouettes (Drigo); Electrical transcription of an American Broadcast: Old Panama (Alford). **7.30,** Concert of Dance Music: Butterflies in the Rain; Jack in the Box; I'm sure of everything but you; Standing on the Corner; Drifting and Dreaming; A Boy and Girl were Dancing; Young and Healthy. **8.0,** Popular Concert. **9.0** till Close Down. Programme in English by the I.B.C. (These times are subject to alteration.) **9.0,** Concert of Gramophone Records, Mr. H. M. Lemoine announcing: Selection from The Maid of the Mountains; I may never pass your way again; Her Name is Mary; Mother Machree; Can't we meet again?; What more can I ask?; The Song of the Nightingale; Daddy. **9.30,** Concert of Light Music: Overture, Die Fledermaus (Joh. Strauss); Play fiddle, play (Lawrence); Boy Soprano Solo: Who is Sylvia? (Schubert); Scarf Dance (Chaminade); Pianoforte Solo: Butterflies in the Rain (Reeves and Myer); Tenor Solo: E' lucevan le Stelle, from Tosca (Puccini); Selection from The Yeomen of the Guard (Sullivan). **10.0,** Orchestral Music: Stephanie Gavotte (Czibulka); Serenade (Heykens); Dance of the Tea Dolls (Schmidt-Hagen); Ideale (Tosti); Vienna, City of my Dreams (arr. Reeve); The Clock and the Dresden Figures (Ketelbey); Wedding of the Winds (Hall). **10.30,** Concert of Dance Music: Butterflies in the Rain; Standing on the Corner; Cheerful little Earful; Play Fiddle play; To-night; Willow weep for me; Look what you've done; Selection from Chu Chin Chow. **11.0,** Light Opera Music: Selection from Frederica (Lehár); Song, I give my Heart, from The Dubarry (Millöcker-Mackeben); Selection from Waltzes from Vienna (Griffiths); Song, The Dubarry (Mackeben); You are my Heart's Delight, from The Land of Smiles (Lehár); Selection from The New Moon (Romberg). **11.30,** Military Marches: Viscount Nelson (Zehle); Distant Greeting (Loring); New Colonial March (Hall); The Thunderer (Sousa); Light of Foot (Lotann); El abanico (Javaloyes); Pomp and Circumstance (Elgar). **12 Midnight,** International Broadcasting Club Concert for Glasgow Listeners. Orchestra: Glasgow Highlanders (arr. Dyack); Pianoforte Solo: Hot Scotch; Message from Captain Leonard Plugge, President and Founder of the Club; Songs: (a) Comin' through the Rye, (b) Bella, the belle o' Dunoon; Accordion Solo: The Road to the Isles; Chorus: Ye Banks and Braes; The Bonnie Banks o' Loch Lomond; Scotland's Pride; Sketch: Doon the Clyde; Bagpipe Solo: Eightsome Reel; Songs: (a) Macleod's Galley (Kennedy-Fraser), (b) My ain Folk; Orchestra: Potpourri, The Thistle. **1.0 a.m. (Monday),** Variety Music: She can't make up her mind; The Coster's Wedding; Fortunes galore; More than you know; The Dutch Wedding; The Fireman; Handsome Gigolo. **1.30,** Songs: Crying for the Carolines (Warren); Gipsy Melody (Nicholls); My Heart is where the Mohawk flows (Carson); The Dance of the Raindrops (Reeves); Wasn't it nice? (Seymour); Say a little Prayer for me (Nicholls); When you wore a Gingham Gown (Gilbert); Crazy Pirouette (Frisk). **2.0,** Light Music; I'll follow you; Isn't it Romantic?; A Million Dreams; Mimi; Please; Here's hoping; Here lies love; Always in my Heart; How do you do, Mr. Brown?; Wanderer; Leave a little for me; Let's all sing like the Birdies Sing; The old Man of the Mountains; Let's put out the Lights. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW. Relayed by **Cassel, 1,220 kc/s, 245.9 metres.—10.30 a.m. to 1.0 p.m.,** See **Leipzig. 1.0,** Songs by Brahms, Hugo Wolf and Richard Strauss on Gramophone Records. **1.30,** Talks arranged by the Wiesbaden Board of Agriculture. **1.40,** Rural Programme—Two Talks. **2.30,** See **Stuttgart. 3.30,** Concert by the Municipal Orchestra, relayed from the Kurhaus, **Wiesbaden:** Overture, Romeo and Juliet (Tchaikovsky); Berceuse (Järnefelt); Prelude (Järnefelt); Symphonic Poem, Carnaval à Paris (Svendsen); Prelude to Phèdre (Massenet); Selection from Der Trompeter von Säkkingen (Nessler-Nikisch); Waltz from Polenblut (Nedbal); Selection from The Land of Smiles (Lehar). **5.0,** Talk on Art. **5.25,** Popular Programme. **5.55,** Talk: The Nibelungs in German Literature before Wagner. **6.20,** Sports Notes. **6.30,** See **Stuttgart. 8.0,** Concert of Viennese Folk Music. **9.0,** Time, News, Weather and Sports Notes. **9.20,** Songs from The Mastersingers (Wagner), on Gramophone Records. **9.45,** See **Munich. 11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269-8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—10.30 a.m.,** See **Leipzig. 11.0,** Nature Study. **11.30,** Wind Instrument Concert, conducted by Luck. In an interval at **11.55,** Time and Weather. **1.0 p.m.,** Programme for Children, with Music by the Chamber Orchestra, conducted by Gerhard Maass. **1.55,** Modern Fairy Tales—New Adventures of Münchhausen. **2.15,** Concert by the Station String Quartet. Soloists: Gertrud Schmidt (Songs), and Gerhard Maass (Pianoforte). **3.0,** Roggenbuk—Marionette Play in Four Acts (after the Saga of St. Jürgen vor Travemünde). **3.55,** Brahms Pianoforte Recital by Herbert Heinemann. Waltz; Variations on a Theme by Paganini. **4.30 (from Kiel),** Satyros—Play (Goethe), with Incidental Music, relayed from the University; Introductory Talk by Prof. Liepe. **5.30,** Concert of Eighteenth Century German Operetta Music, by the Station Orchestra, conducted by Adolf Seeker. Soloists: Erna Kroll-Lange, Gertrud Schnitzer, Herbert Groh, Erwin Bolt and Bernard Jakschtat. Two Arias and Duet from Pomona (Keiser); Trios, Chorus and Arias from Der Erntekranz (Joh. Adam Hiller). **6.30,** Talk on Wrestling. **6.40,** Sports Report. **6.55,** Weather Forecast. **7.0,** Concert of Opera Music, by the Philharmonic Orchestra, conducted by Richard Richter. Soloists: Willy Frey and Mathieu Ahlers Mayer (Songs). Overture, Fidelio (Beethoven); Aria from Martha (Flotow); Czardas from Der Geist des Wojewoden (Grossmann); Aria from Don Carlos (Verdi); Selection from Il Trovatore (Verdi); Overture, The Flying Dutchman (Wagner); Duets from: (a) The Force of Destiny (Verdi), (b) Othello Verdi); Polonaise from Eugene Onegin (Tchaikovsky). **9.0,** Time, Weather, News and Announcements. **9.10,** Topical Talk. **9.20,** Dance Music from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 562 kc/s; 453.2 metres.—10.30 a.m. to 1.0 p.m.,** See **Leipzig. 1.0,** Talk on Chess. **1.30,** Talk for Young People. **2.0,** The Garden of Paradise—Radio Play for Young People (Rudolf Simon). **2.40,** Concert by the Königsberg Opera House Orchestra, conducted by Karl Hrubetz. Sports Notes in the intervals. **4.40,** Talk: How Pizarro conquered Peru. **5.10,** Programme in North German Dialect. **5.40,** Pianoforte Recital: Arabesques on the Waltz, The Blue Danube (Schulz-Erler); Rhapsody espagnole (Liszt). **6.15,** Sports Notes. **6.30,** See **Stuttgart. 7.30,** Talk: Adventures in the Caucasus and Turkestan. **8.0,** News Bulletin. **8.5,** Christopher Columbus—Oratorio (Konrad Friedrich Noetal) by the Königsberg Opera House Orchestra, the Station Choir and Choir of the College of Music. **9.30,** News and Sports Notes. **9.45** (approx.), Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

HILVERSUM

Announced **HUIZEN, 1,013 kc/s, 296.1 metres;** 20 kW (7 kW up to 4.40 p.m.).—**8.10 a.m.,** Religious Programme by the Christian Radio Society (N.C.R.V.). **9.10,** Programme of the Catholic Radio Society (K.R.O.)—Mass, relayed from a Church in Amsterdam. **10.30** (approx.), See **Vienna. 12.40 to 4.40 p.m.,** K.R.O. Programme. **12.40,** Political Talk. **1.0,** Sextet Concert. **1.40,** Religious Talk. **2.10,** Choral and Orchestral Concert. **4.10,** Programme for Hospitals. **4.40 to 7.25,** N.C.R.V. Programme. **4.40,** Religious Address. **5.0,** Recital of Sacred Music by Mme. A. Reclaire (Contralto) and M. F. Klock (Organ). **5.30,** Divine Service relay, followed by Sacred Music. **7.25** till Close Down, K.R.O. Programme. **7.25,** Talk on Ireland. **7.50,** Football Results. **7.55,** Extracts from La Boheme—Opera (Puccini). In the interval at **8.35** (approx.), News. **9.35,** Popular Music on Gramophone Records. **9.40,** Orchestral Concert, conducted by J. Gerritsen: March, Der Tausendkünstler (Blankenburg); Overture, Die schöne Galathee (Suppé); Selection from Der Bettelstudent (Millöcker); Waltz, Gold and Silver (Lehar); Sanctuary of the Heart (Ketelbey). **10.20,** Epilogue by the Small Choir, conducted by J. Pickkers. **10.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 160 kc/s, 1.875 metres;** 8.5 kW.—**8.10 to 11.40 a.m.,** Programme of the Workers' Radio Society (V.A.R.A.). **8.10,** Horticultural Talk. **8.40,** Talk. **8.55,** Football Report. **8.57,** Organ Recital. **9.20,** Recitations. **9.40,** Orchestral Concert. **10.20,** Talk: The Cinema. **10.40** Concert (contd.). **11.20,** Address. **11.46 to 4.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.40,** Concert by a Military Band, conducted by Walter Boer. Interludes on Gramophone Records. **1.40,** Weekly Book Talk. **2.10,** Concert, relayed from The Concertgebouw, Amsterdam. The Concertgebouw Orchestra, conducted by Dr. Willem Mengelberg. Soloist: Willem Andriessen. **3.40,** Gramophone Records of Variety Music. **4.25,** Sports Notes. **4.40 to 5.40,** V.A.R.A. Programme: Children's Hour. **5.40 to 7.40,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). **5.40,** Review of Books. **6.25,** Divine Service. **7.40** till Close Down. Programme of the A.V.R.O. **7.40,** Time and News. **7.55,** Concert by the Wireless Orchestra, conducted by Nico Treep. Soloists: Helene Cals (Soprano), and Herbert Ernst Groh (Tenor); Introduction to the Third Act of Lohengrin (Wagner); Duet from The Barber of Bagdad (Cornelius); Entry of the Guests into the Wartburg from Tannhäuser (Wagner); Aria and Duet from Rigoletto (Verdi); Splendour and Victory (Finck); Duet from Manon Lescaut (Puccini). **8.40,** Recitations. **9.0,** Concert (contd.): Waltz, Roses from the South (Joh. Strauss); Two Songs from Musical Comedies. Overture, Flotte Bursche (Suppé); The Globetrotter (Leopold). **9.25,** Gramophone Records of Light Music. **9.40,** Concert by Kovacs Lajos and his Orchestra: Songs by Bob Scholte. **10.50,** Gramophone Records of Light Music. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

NICE, 1,202 kc/s, 249.6 metres; 0.8 kW.—**11.0 p.m. to 12 Midnight,** Programme in English by the I.B.C. H. K. Hitchcock announcing.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**11.0 a.m.,** See **Leipzig. 1.5 p.m.,** Reading (S. P. Andres). **1.30,** Shorthand Lesson. **1.50,** Talk: Agricultural Colleges. **2.20,** Talk on Plants. **2.40,** Wireless Technical Talk. **3.0,** Talk: Musicians who died young—Rudi Stephan. **3.30,** Concert by a Thousand School Children, with the collaboration of a School Orchestra, conducted by Anton Hardörfer, relayed from the Saalbau, **Essen. 5.0,** A Visit to the Benedictine Monastery of St. Joseph Gerleve. **6.0,** An Entertainment. **6.45,** Sports Notes. **7.0,** Variety Programme of Literature and Music; The Station Orchestra, conducted by Buschkötter; Soloist: Prof. Paul Grümmer ('Cello); Reading: Carl Maria Weber and his opera Der Freischütz (R. Wagner); Overture, Der Freischütz (Weber); Thoughts on Music (Robert Schumann); Concerto for 'Cello (Schumann); Richard Strauss to Franz Wüllner on the First Production of Till Eulenspiegel on November 5th, 1895; Till Eulenspiegel's Merry Pranks (Richard Strauss); Das rechte Pedal ist an allem Schuld—A Scene with Music and Dance arranged for Radio (Adolf Raskin). **9.5,** News and Sports Notes. **9.25,** Serenade on Gramophone Records. **9.45,** See **Munich. 11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **DRESDEN, 941 kc/s, 319 metres).—10.30 a.m.,** Himmelskönig, sei willkommen—Cantata (Bach), by the Gewandhaus Orchestra, the Choir of St. Thomas, and Soloists. **11.0,** Concert by the Leipzig Symphony Orchestra conducted by Robert Manzer. **1.0,** Weather and Time. **1.1** Programme Announcements. **1.25,** Agricultural Hints. **2.0,** Zither Duets. **2.3** Reading for Young People. **3.20,** Concert by the Leipzig Symphony Orchestra conducted by Willy Steffen: Overture, Die Opernprobe (Lortzing); Mazurka brillante (Liszt); Waltz, Die Werber (Lanner); Caprice (Donisch); Selection from Hansel and Gretel (Humperdinck); Two Lyric Pieces (Grieg): (a) Abende im Hochgebirge, (b) An der Wiege; Stimmungsbilder (Lange); Gondoliera (Ries); Perpetuum mobile (Ries); March, Die Jugend marschiert (Lindemann). **4.45,** Reading from the Works of Friedrich von Gagern. **5.15,** Am anderen Ufer (On the other Bank)—Radio Play (Herbert Scheffler), with Incidental Music by Siegfried Scheffler. **6.30,** Topical Report. **7.15,** Topical Talk. **7.30,** See **Munich.** In the Interval at **9.5,** News Bulletin. **11.0** (approx), Close Down.

LINZ.—See **Vienna.**

MADRID

ARANJUEZ (EAQ); 9,860 kc/s., 30.43 metres; 20 kW.—**10.30 p.m.,** Concert of Variety Music. **10.45,** Humorous Talk. **11.0,** Concert (contd.). **11.35,** Talk. **11.40,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO (EAJ7), 707 kc/s., 424.3 metres; 2 kW.—**8.0 to 9.0 a.m.,** Topical Review. **2.0 p.m.,** Chimes, Time Signal, Theatre Notes, and Concert by the Arts Orchestra. **4.0 to 7.0,** Interval. **7.0,** Chimes and Dance Music, relayed from the Ritz Hotel. **7.30** (in an interval), Agricultural Talk. **8.30 to 9.30,** Interval. **9.30,** Chimes and Time Signal. **9.35** (approx.), Pianoforte Recital by Juan Costa Rust, Song Recital by Conchita Agullo, and Flamenco Songs by Ricardo Fernandez, with Guitar Accompaniment. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**3.0 p.m.,** Concert of Light Music by the Station Orchestra, conducted by J. Plichta. **4.30** to **5.45,** See **Prague. 6.0,** See **Prague. 7.0,** See **Bratislava. 9.0,** See **Prague. 9.20,** See **Bratislava. 10.0** (approx.), Close Down.

MOSCOW

230 kc/s, 1,304 metres; 100 kW.—**5.30 p.m.,** Kostchei the Immortal—An Autumn Legend (Rimsky-Korsakov), relayed from the Radio Theatre. **8.0,** Talk in English. **8.15,** Chimes. **9.5,** Weekly Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 400 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—11.0 a.m.,** See **Leipzig. 12.5 p.m.,** Time, Weather and Programme Announcements. **12.15,** Talk: Sheep Dogs. **12.35,** Gramophone Concert of Variety Music. **1.30,** Chess Lesson. **2.15,** Programme for Children. **3.15,** Concert of Light Music, conducted by Erich Kloss. **4.45,** Folk lore of the West—a Study of German Songs and Poems in Alsace-Lorraine. **5.10,** Die schö' Cenzi vo' Mittenwald—Upper Bavarian Musical Play (F. v. Kobell). **5.55,** Organ Recital by Dr. Hermann Keller. **6.20,** Weather and Sports Notes. **6.30,** The Miniature Zoo—Radio Sequence (Lippl and Weninger). **7.30,** Concert by the Radio Orchestra, conducted by Hans A. Winter. Soloist: F. J. Hirth (Pianoforte). Overture, Manfred (Schumann); Andante con moto and Scherzo from the Symphony in C (Schubert); Symphonic Variations for Pianoforte and Orchestra (Franck); Polovtsian Dances from Prince Igor (Borodin); Hungarian Fantasia for Pianoforte and Orchestra (Liszt); Air from Don Quixote (Beer-Walbrunn). **9.0,** Famous Singers on Gramophone Records. **9.20,** Time, Weather, News and Sports Notes. **9.35,** Serenade, conducted by Erich Kloss. **11.0** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres,** and **Rjukan, 671 kc/s, 447.1 metres.—9.15 a.m.,** Road Report. **9.20,** Chimes and Divine Service from St. Saviour's Church. **12 Noon,** Jubilee Choral Concert, relayed from **Fredriksstad. 4.0 p.m.,** Sponsored Concert on Gramophone Records. **4.40,** Recitations. **5.0,** Talk. **5.30,** Clarinet Quintet (Mozart), relayed from **Trondheim (605 kc/s, 495.8 metres). 6.0,** Parliamentary Review. **6.30,** A Sketch. **7.0,** Time Signal. **7.1,** Concert by the Station Orchestra, conducted by Hugo Kramm. Soloist: Madame Signy Cleve-Guhnfeldt (Pianoforte). Concert Overture, In Autumn (Grieg); Concerto in A for Pianoforte and Orchestra (Cleve); Suite, Mozartiana (Tchai-

kovsky). 8.10, Songs and the Week's Revue by Lyktemann. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Programme to be announced. 9.45, Gramophone Dance Music. 11.0 (approx.), Close Down.

ÖSTERSUND.—See **Stockholm.**

PARIS

EIFFEL TOWER, FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals on 2,650 metres at 8.26 a.m. and 9.26 p.m. (Preliminary and Gédot Signals).—**12 Noon,** News Bulletin. 12.15 p.m., Weather Report. 12.30 to 1.30, Concert by Jean Ibos and his Orchestra. 2.0 (approx.), Running Commentary on the International Football Match, France v. Belgium. 5.45, Le Journal Parlé. 6.45, Programme for Children. 7.20, Weather Report. 7.30, Gramophone Concert: Part I—Verdi Programme; Part II—Light Music. 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—8.45 a.m., Bible Reading. 9.0, News Bulletin. 9.5, Sponsored Concert. 10.5, Film Stars—Sponsored Programme. 10.40, Sponsored Gramophone Concert. 11.15, Songs from Sound Films—Sponsored Programme. 11.45, Half-an-Hour of Fantasy by Paul Weill. 12.30 p.m., Sponsored Concert. 1.0 to 5.45, Interval. 5.45, Le Journal Parlé. 6.0, Sports Notes. 6.15, Light Music on Gramophone Records. 6.30, Catholic Report. 7.0, Interval. 7.15, Variety Music on Gramophone Records. 8.0, Poetry Reading. 8.56, Sponsored Concert. 9.10, Variety Music on Gramophone Records. 9.30, News Bulletin.

PARIS

RADIO-PARIS (CFR), 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Light Music on Gramophone Records. 7.0, Press Review and Weather. 7.30, Physical Culture. 9.0, Elementary Book-keeping Lesson. 9.20, Advanced Book-keeping Lesson. 9.40, Spanish Lesson. 10.0 to 10.30, Interval. 10.30 to 11.0, Programme in English by the I.B.C.: Mr. T. St. A. Ronald announcing: Sanctuary of the Heart, by Arthur Vivian (Baritone), with Male Chorus and Orchestra; What more can I Ask? from The Little Damozel, by the Three Virginians; The Dear Old Home; Songs, Part 1: by Tarrant Bailey, Junior (Banjo): (a) My Grandfather's Clock, (b) The Old Rustic Bridge by the Mill, (c) After the Ball, (d) John Peel; Popular Tunes from the Latest Talkies: Part II: by Ned Fox's Film Fans: (a) What more can I Ask?, (b) Where is this Lady?, (c) Brighter than the Sun; My Darling, by Val Rosing; Comedy Song, So Does She, by Bobbie Comber (Comedian); Comedy Foxtrot, The Argument Song, by Jack Payne and his Band, with Vocal Chorus; Musical Memories: Part I: by Reginald New on the Latest Compton Cinema Organ: (a) Polonaise in A (Chopin), (b) Spring Song (Mendelssohn), (c) Serenade (Schubert), (d) Hungarian Dance (Brahms). 11.0, Religious Address. 11.20, Sacred Music on Gramophone Records. 11.30, Bilboquet. 11.45, Press Review, News and Weather. 12 Noon to 2.30 p.m., Programme in English by the I.B.C. 12 Noon, Gramophone Records: Mr. H. M. Lemoine announcing: Selection from The Maid of the Mountains: Part I: by the Commodore Grand Orchestra: Brighter than the Sun, by the Scala Dance Band; Song, My Darling, by John McKenna, with Orchestra; As your Hair Grows Whiter, by Harry Davidson, at the Commodore Organ; I'm Playing with Fire, by Tauzoni and his Dance Band; Cavalcade Memories; Part II: by the Commodore Grand Orchestra and Organ: Song, Bless this House, by Gladys Knight and Orchestra; The Musical Clock of Madame Pompadour, by the Commodore Grand Orchestra. 12.30, Gramophone Records: Mr. T. St. A. Ronald announcing. 2.0, Orchestral Concert: March, La petite Tonkinoise; Selection from The Geisha (Jones); Selection from Betty in Mayfair; Foxtrot, My Darling; Selection from The Merry Widow (Lehár); Selection from Show Boat (Kern). 2.30, Classical Music on Gramophone Records. 3.0 to 4.0, Programme in English by the I.B.C.: Tea-Time Variety Hour: Mr. S. H. C. Williams announcing. 4.0, Lenten Sermon by the Reverend Father Pinard de la Boullaye: Jesus, the Apostle of God. 5.30 to 7.0, Programme in English by the I.B.C. 5.30, Variety Half-Hour: Mr. Glynne Williams announcing. 6.0, Film Fans' Hour: Mr. S. H. C. Williams announcing. 7.0, Radio Paris Circus. 7.30, News, Sports Notes and Weather. 7.45, Five Short Preludes (Harsanyi), on Gramophone Records. 8.0, Cette Nuit-là-Revue (Zilahy), relayed from the Théâtre de la Madeleine. In the Intervals, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.,** Dick Daring, from **New York.** 9.15, Temple of Song, from **New York.** 9.30, Vesper Services from Shadyside Presbyterian Church, Pittsburgh. 10.30, Pages of Romance, from **New York.** 11.0, Sealed Power, from **New York.** 11.30, Time Signal. 11.31, Weather Report. 11.32, Teaberry Sport Review. 11.37, Press News Reeler. 11.42, Strange Facts. 11.44, Temperature Report—Philadelphia Company. 11.45, The Fireflies. **12 Midnight,** Time Signal and KDKA Orchestra. 12.30 to 3.45 a.m. (Monday), **New York** Relay. 12.30 a.m., Great Moments in History. 1.0, The Land Where the Good Songs go. 2.0, Twenty Thousand Years in Sing Sing. 2.30, Walter Winchell. 2.45, Pickens Sisters. 3.0, D. W. Griffith's Hollywood. 3.45, Don Lucas—Piano Opera. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report—Philadelphia Company. 4.12, Weather Report. 4.15, Press Last-Minute News. 4.20, Alexander Roy (Tenor). 4.30, Jesse Crawford (Organist), from **New York.** 5.0, Time Signal and Goodnight.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**10.0 a.m.,** Concert by the Station Orchestra, conducted by Otakar Parik: Symphonic Poem, Op. 44, My Youth (Foerster); Symphony in E, Op. 14 (Suk). 11.0, Chimes. 11.5, See **Brno.** 12.30 p.m., Agricultural Report. 1.15, Talk: Social Workers. 2.30, Moravian Duets, Op. 32 (Dvořák). 3.0, See **Moravská-Ostrava.** 4.30, Talk. 4.45, Variety Music on Gramophone Records. 5.0, German Transmission: German Songs of the Baroque Period by Käthe Walter, R. Bandler and Walter Kaufmann and his Orchestra. 6.0, Chimes. 6.1, Humorous Programme. 7.0, See **Bratislava.** In the interval at 8.0, Time Signal. 9.0, Time Signal. 9.1, News Bulletin. 9.20, See **Bratislava.** 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s., 403 metres; 25 kW.; **LAUSANNE, 442 kc/s, 680 metres;** and **GENEVA, 395 kc/s., 760 metres.**—8.40 a.m. (from **Lausanne**), Chimes. 8.45 (from **Lausanne**), Protestant Service, relayed from the St. Laurent Church. 10.0 (from **Lausanne**), Concert by Edouard Moser and his Orchestra. 11.0 (from **Lausanne**), Readings. 11.30, News Bulletin and Weather Forecast. 11.40 (from **Lausanne**), Light Music on Gramophone Records. 1.0 to 2.45 p.m., Interval. 2.45, Concert by the Lyre de Montreux, conducted by T. Hillaert, relayed from **Montreux:** Overture, Oberon (Weber); Concertino for Eight Clarinets (Weber); Italian Caprice (Tchaikovsky); Second Suite from L'Arlésienne (Bizet); Symphonic Poem, Les Préludes (Liszt). 4.30 to 5.30, Interval. 5.30 (from **Geneva**), Protestant Address. 6.0 (from **Lausanne**), Accordion Concert. 6.40 (from **Geneva**), Sports Notes, News, and Announcements. 7.0 (from **Lausanne**), Talk on Cats. 7.15 (from **Geneva**), The Week's Review. 7.25, Italian-Suisse Programme: Choral Concert of Folk Songs from Ticino. 7.55, Concert by the Station Orchestra, conducted by R. Echenard. 9.0, News and Weather. 9.15 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,810 kc/s, 25.4 metres.**—**9.10 a.m.,** News, Sports Notes and Amusement Guide. 9.30, Agricultural Notes. 9.45, Bible Reading. 10.0 to 11.0 and 11.30 to 1.30 p.m., See **Turin.** In the interval at 12 Noon, Time and Announcements. 2.45 (**Naples**), Programme for Children, Weather and Sports Notes. 3.0, Football Results. 3.15 to 5.15, Orchestral Concert. Sports Notes in the interval. 6.30, Football Results, Announcements and News. 7.0, Time and Announcements. 7.30, Sports Report. 7.45, The Girl in the Taxi Operetta in Three Acts (Gilbert). In the intervals: Talk and Reading of Poems. News after the Operetta.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** and by **W2XAD** (See Short-Wave List).—**7.0 to 12 Midnight, New York** Relay. 7.0 p.m., Clyde Doerr and his Saxophone Octet. 7.15, International Radio Forum. 7.30, Joe Green and his Marimba Band. 8.0, Wayne King's Orchestra. 8.30, Hour of Worship. **12 Midnight,** Dr. Frank Sill Rogers (Organist). 12.15 a.m. (**Monday**), Whenatena Ville—Sketch with Ray Knight, from **New York.** 12.30, Horse Sense Philosophy. 12.45 to 2.30, **New York** Relay. 12.45, Smith Brothers. 1.0, Chase and Sanborn Hour. 2.0, General Electric Sunday Circle Concerts. 2.30, American Album of Familiar Music, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW: **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres.**—**9.0 a.m.** (from **Basle**), Protestant Address and Morning Recital. 9.45 (from **Basle**), Concert of Chamber Music. 10.45 (from **Basle**), Dr. Margarethe Schwab-Plüss reads from her own

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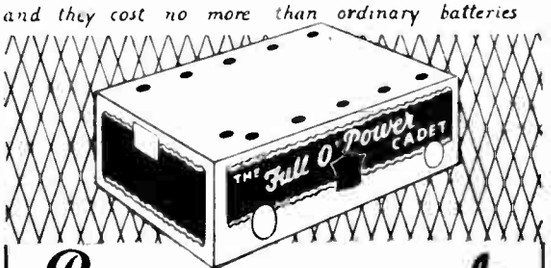

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MARCH 26th SUNDAY *continued*

Works. **11.10** (from **Basle**), Popular Music on Gramophone Records. In the interval at **11.28**, Weather, Time and News. **12.30 p.m.**, (from **Basle**), Agricultural Talk. **1.0** (from **Basle**), Orchestral Concert. **1.30 to 2.30**, Interval. **2.30** (from **Basle**), Concert of Yodels and Zither Quartet Music. **3.20** (from **Basle**), The Bottle Imp—Fairy Story (R. L. Stevenson), arranged for the Radio by Fritz Mack. **4.5 to 5.0**, Interval. **5.0**, Concert of Sacred Music from St. Laurence's Church, St. Gall. **6.15**, Time, Weather, and Sports Results. **6.20** (approx.) (from **Basle**), Light Music on Gramophone Records. **6.30** (from **Basle**), Recitations. **7.0** (from **Basle**), Die heilige Elizabeth—Oratorio for Soloists, Choir and Orchestra (Jos. Haas). **8.15** (approx.) (in the interval), Weather and News. **9.15** (approx.), Sports Notes and Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres**; **Goteborg, 932 kc/s, 322 metres**; **Horby, 1,166 kc/s, 257 metres**; **Motala, 221.5 kc/s, 1,354.4 metres**; **Ostersund, 389 kc/s, 770 metres**; and **Sundsvall, 554 kc/s, 542 metres.**—**1.0 p.m.**, Symphony Concert relayed from **Norrkoping, 1,292 kc/s, 232.2 metres.** Serenade in A, Op. 16 (Brahms); Concerto in G Minor for Violin and Orchestra (Eriksson); Symphony in G Minor (Mozart). **2.40**, Talk in English. **3.0**, Programme for Children. **4.0**, Weather. **4.5**, Popular Music on Gramophone Records. **5.0**, Evensong. **6.15**, Weather and News. **6.30**, Variety Programme. **8.15**, Reading. **8.45**, Weather and News. **9.0**, Concert of Light Music. **10.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW. **8.30 a.m.**, Orchestral Concert, conducted by Maurice de Villers. **9.45**, Protestant Service in German. **10.30**, Catholic Service. **11.0**, Variety Music on Gramophone Records. **11.45**, News. **12 Noon**, Time. **12.1 p.m.**, Variety Music on Gramophone Records. **1.0**, Agricultural Talk in German. **1.15**, Interval. **1.30**, Concert, conducted by Henri Tomasi, relayed from the Salle du Journal, Paris. **3.30**, Pasdeloup Symphony Concert, relayed from the Théâtre des Champs Elysées, Paris. **6.0**, Medical Talk in German. **6.15**, Sports Notes in French. **6.30**, Time, News, and Sports Results. **6.45**, Beethoven Music on Gramophone Records. **7.20**, Lottery Results. **7.30**, Alsatian Programme: E Meis'l pfilt im Apfelbaum—Radio Play in Two Scenes (Victor Schmidt); Lischen et Fritzchen—One-Act Operetta (Offenbach). **9.30**, Dance Music from the Savoy. **11.0** (approx.), Close Down.

STUTTGART

(MUHLACKER). 832 kc/s, 360.5 metres; 60 kW. Relayed by **Freiburg, 527 kc/s, 570 metres.**—**10.30 a.m.**, See **Leipzig. 11.0**, Open Air Concert from the Stadtgarten, Freiburg. **12 Noon**, Topical Talk. **12.15 p.m.** (from **Mannheim**), Talk: German Patriotism. **12.30**, Gramophone Records of Popular Music. **1.0**, A Summer's Day Procession in Weinheim—Radio Report on a Children's Festival, relayed from **Weinheim. 1.30**, Recital of George Göhler's Songs by Hans Hofele. **2.0**, Pianoforte Recital of Russian Music by Erwin Kübler. **2.30** (from **Freiburg**), Programme for Young People: A visit to a Hunting Lodge in the Black Forest. **3.30** (from **Mannheim**), Drinking Songs by Gustav Adolf Knörzer (Bass). **4.0** (from **Mannheim**), Concert by the Mannheim Philharmonic Orchestra, conducted by Rudolf Boruvka: March, Deutschlands Waffenehre (Blon); Ballet Music from Les petits riens (Mozart); Waltz, Marienklänge (Joh. Strausss); Selection from The Merry Widow (Lehar), Overture, Peter Schmoll (Weber); Homage March (Wagner). **5.0** (from **Freiburg**), Ode for St. Cecilia's Day (Handel), arranged by Fr. Chrysander: The Freiburg Chamber Choir and Orchestra, with Hans Höffliu (Tenor) and Ilse Wahl (Soprano). **5.40**, Sports Notes. **5.50**, Dr. Zillich reads from his own Works. **6.10**, Accordion Trio Recital. **6.30**, Vita somnium breve—Bunter Abend. **7.30**, Programme to be announced. **9.0**, Time, News, Weather, Programme Announcements and Sports Notes. **9.30**, Newly-released Gramophone Records. **9.45**, See **Munich. 11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—**11.15 a.m.**, News Bulletin. **11.30**, Catholic Service. **12 Noon**, Amusement Guide and Market Prices. **12.5 p.m.**, Orchestral Music. **12.15**, Operetta Music. **12.40**, Agricultural Report. **12.45**, Protestant Service. **1.15**, News Bulletin. **1.20**, Orchestral Music. **2.0**, Popular Songs. **2.15**, News and Racing Results. **2.20**, Viennese Music. **2.45**, Airs from Operettas. **3.15**, Racing Results. **3.20**, Accordion Music. **3.30**, Dance Music. **4.0**, Popular Melodies. **4.15**, News and Racing Results. **4.20**, Orchestral. **4.45**, Arias from Opera. **5.0**, News Bulletin. **5.15**, Military Music. **5.30 to 6.0**, Programme in English by the I.B.C. **5.30**, Concert of Dance Music. **Announcer**: W. Brown Constable. I'm playing with Fire; Every Woman thinks she wants to wander; What more can I ask?; What a perfect Combination; In the Moonlight; Sitting in the Dark; Becky, play your Violin; Love Tales; The wise old Owl said "Hoo." **6.5**, Sound Film Music. **6.15**, News, Racing Results and Market Prices. **6.30**, Viennese Music. **7.0**, Opéra-Comique Music. **7.30**, 'Cello Solos. **7.30**, Popular Songs. **7.45**, Suite Algérienne (Saint-Saëns). **8.15**, Songs from Operettas. **8.30**, Accordion Solos. **8.45**, Orchestral Music. **9.15**, North African News. **9.30 to 10.0**, Programme in English by the I.B.C. **9.30**, Concert of Light Music: Haunting Tunes of To-day; Everybody's going but me; River stay 'way from my Door; Old Time Song Medley; The Wolf; When we are alone; When Yuba plays the Rumba; More Haunting Tunes. **10.0**, Concert for Listeners in Morocco. **10.30**, Dance Music. **11.0**, Weather and Announcements. **11.5**, Bal Musette. **11.15**, Military Music. **11.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**8.40 a.m.**, See **Turin. 8.55**, Mass from the Cathedral of San Giusto. **10.0 to 10.20**, Agricultural Notes. **11.0** till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres**; **Genoa, 959 kc/s, 312.8 metres**; and **Florence, 599 kc/s, 500.8 metres.**—**8.40 a.m.**, Giornale Radio. **8.55 to 9.40**, Interval. **9.40**, Agricultural Talk. **10.0**, Mass from the Church of the Annuciation, **Florence. 11.0 to 11.15**, Bible Reading. **11.30**, Orchestral Concert. In the interval at **12 Noon**, Time and Announcements. **12.30 to 1.30**, Orchestral Concert of Light Music. **2.30**, Gramophone Records of Popular Music. **3.0**, Orchestral Concert. Sports Notes in the intervals. **5.0 to 5.15**, Giornale Radio and Sports Report. **6.0**, Dopolavoro Notes. **6.5** (approx.), Popular Music on Gramophone Records. **6.30**, Time, Announcements, and Gramophone Records (contd.). **7.0**, Giornale Radio, Sports Notes, and Gramophone Records of Variety Music. **8.0**, Guido del Popolo—Opera in Three Acts (Igino Robbiani), relayed from the Scala, **Milan.** In the intervals, Talk, Theatre Notes, and Giornale Radio.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres**; **Innsbruck, 1,058 kc/s, 283 metres**; **Klagenfurt, 662 kc/s, 453.2 metres**; **Linz, 1,220 kc/s, 245.9 metres**; and **Salzburg, 1,373 kc/s, 218.5 metres.**—**10.30 a.m.**, Programme in Memory of Dr. Seipel, relayed from the State Opera House. The Vienna Philharmonic Orchestra and Choir, conducted by Clemens Krauss. Soloist, Richard Mayr (Bass). Introductory Address. Kyrie, from the Missa Papae Marcelli (Palestrina); Crucifixus (Antonio Lotti); Recitative and Aria, from Joshua (Händel); Aria from Elijah (Mendelssohn); The Third Symphony—Eroica, in E Flat, Op. 55 (Beethoven). **12.15 to 1.15 p.m.**, Concert of Old Time Marches. **2.0**, Time and Programme Announcements. **2.5**, Review of Books. **2.30**, Chamber Music: String Quartet in A, Op. 16 (Korngold); Fugue in B Flat, Op. 133 (Beethoven). **3.30**, Talk: Travels in Sicily. **3.55**, Concert by the Johann Wilhelm Ganglberger Orchestra and Soloists. **5.15**, Talk: How animals help one another. **5.40**, Reading (H. E. Jakob). **6.10**, Song Recital by Karl Hammes (Baritone). **6.50**, Time, Sports Notes, and Programme Announcements. **7.0**, The Barometer Maker on the Enchanted Island—Sketch, with Music, in Two Acts (Ferdinand Raimund). **8.45**, News Bulletin. **9.0**, Music from Paper. **9.30**, Part Relay of the Benefit Concert for the Blind, from the Gschwandtner Etablissement.

WARSAW

212.5 kc/s., 1,411 metres; 120 kW.—**10.57 a.m.**, Time Signal and Bugle Call from the Tower of St. Mary's Church, Cracow. **11.5**, Programme Announcements. **11.10**, Weather Forecast. **11.15**, Tchaikovsky Concert by the Warsaw Philharmonic Orchestra, conducted by C. Wilkomirsky. Soloists: T. Leczaj (Bass) and M. Sztyglio (Violin). In the interval, Announcements. **1.0 p.m.**, Talk for Housewives. **1.20**, Concert from **Gracow (959 kc/s., 312.8 metres).** In the interval at **1.40**, Agricultural Talk. **3.0**, Programme for Young People. **3.25**, Light Music on Gramophone Records. **3.45**, Talk on the Polish Language. **4.0**, Recital on Two Pianofortes: Sonata in D for Two Pianofortes (Mozart); Variations on a theme by Haydn, for Two Pianofortes (Brahms); Pianoforte Solos: (a) Le Désir (Chopin-Liszt), (b) Waldesrauschen (Liszt), (c) Tarantella (Liszt). In the interval, Announcements. **4.55**, Programme Announcements. **5.0**, Light Music. **6.0**, Miscellaneous Items. **6.25**, Reading. **7.0**, Vienna—Concert by the Station Orchestra, conducted by M. Geiger. Soloist, Mme. Turnai (Songs). In the interval, Sports Notes. **8.40**, Violin Recital by C. Szanassy. **9.30**, Dance Music. In the interval at **9.55**, Weather and Police Notes.

ZURICH.—See **Schweizerischer Landessender.**

MONDAY

MARCH THE TWENTY-SEVENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Chamber concert. An Ashley Sterne revue.
LONDON REGIONAL	Instrumental and vocal concert.
MIDLAND REGIONAL	Midland Counties feature programme : Northampton-shire.
NORTH REGIONAL	Brass band concert.
WEST REGIONAL	Orchestral concert from National Museum of Wales.
BELFAST	Light opera and musical comedy.

ABROAD

BARCELONA	9.15 p.m. Concert by the Station Orchestra.
BERO-MUNSTER	7 p.m. Symphony concert from Zürich.
BRNO	8.15 p.m. Josef Kunc concert on occasion of the composer's fiftieth birthday.
BRUSSELS (No. 1)	7.15 p.m. "Le Colonel Chabert," a play (after Balzac).
BRUSSELS (No. 2)	7 p.m. The Symphony Orchestra, conducted by A. Meulemans.
COPENHAGEN	7.30 p.m. Pianoforte recital by Viktor Fischer.
EIFFEL TOWER	7.30 p.m. Selections from Messager's operettas.
HAMBURG	7 p.m. Old and Modern Chamber Music, relayed from Kiel.
HILVERSUM	8.55 p.m. Orchestral concert, conducted by Nico Treep.
HUIZEN	7.40 p.m. Bach concert, relayed from The Hague.
RADIO-PARIS	7 p.m. Operetta : "Les Brigands" (Offenbach).
STRASBOURG	7.30 p.m. Concert from the Municipal Theatre, Metz.

ALGIERS

825.3 kc/s, 364 metres; 13 kW.—**7.0 p.m.,** Financial News. **7.10,** Shipping News. **7.15,** Agricultural Report and Weather Forecast. **7.20,** Accordion Music. **7.40,** Talk arranged by the Society for Prevention of Cruelty to Animals. **7.50,** Wireless Notes. **7.55,** News Bulletin. **8.0,** Time Signal. **8.2,** Book Review. **8.15,** The Daughter of the Regiment—Opera (Donizetti). **9.30,** News Bulletin. **9.35,** Songs from Operetta: (a) Encore cinquante centimes (Yvain), (b) La Mascotte (Audran), (c) The Merry Widow (Lehár). **9.55,** News Bulletin. **10.0** (approx.), Close Down.

ATHLONE

725 kc/s, 413 metres; 60 kW., and **CORK, 224.4 metres.**—**1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Concert on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** Talk on Housing. **8.0,** Harp and Flute Music. **8.30,** Baritone Solos by T. W. Hall. **8.40,** The Station Orchestra. **8.55,** Baritone Solos by T. W. Hall. **9.5,** Talk on Anglo-Irish Poetry. **9.30,** Uilleann Pipe Solos. **9.45,** Anglo-Irish Songs by Nora Finn (Contralto). **9.55,** Concert of Irish Music by the Station Orchestra. **10.5,** Contralto Solos by Nora Finn. **10.15,** The Station Orchestra (contd.). **10.30,** Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert: Overture, Der Freischütz (Weber); Prelude, Op. 28, No. 17 (Chopin); Meditation from Thaïs (Massenet); Duet from Boris Godunov (Mussorgsky). **6.30,** Quintet Concert, relayed from the Café de la Rambla. **7.30,** Sports Talk, Exchange Quotations and Talk in Catalan. **8.0,** Light Music on Gramophone Records and News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. **9.5,** Humorous Review of the Week in Verse. **9.15,** Concert by the Station Orchestra: Pasodoble, Granada la arabesca (de Lesmo); Waltz, Freut euch des Lebens (Joh. Strauss); Berceuse (d'Ambrosio); Evensong (Rabey); Danse macabre (Saint-Saëns); Minuet in G (Beethoven); Dance (Berardi). **10.0,** The Art and Industry of Badalona—a Relay from a Theatre in Badalona.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes, Tourist Report and Dopolavoro Notes. **7.20,** Giornale Radio. **7.30,** Time and Announcements. **7.35** (approx.), André Chénier—Opera (Giordano), on Gramophone Records. In the intervals, Talk and Announcements. News after the Programme.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**4.0 p.m.,** Dialogue in German. **5.55,** Time and Programme Announcements. **6.0,** Orchestral Concert of Variety Music. **7.0,** Instrumental Concert, relayed from **Zagreb (977 kc/s, 307 metres).** **9.0,** News, followed by Dance Music on Gramophone Records.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**1.0 p.m.,** Gramophone Concert, relayed from **Berlin (Witzleben).** **2.0,** Talk for Women: New Spring Pullovers. **2.30,** Weather and Exchange. **2.45,** Review of English and American Novels: (a) The Flowering Wilderness (Galsworthy), (b) Brave New World (Aldous Huxley), (c) Old Pybus (Warwick Deeping), (d) Ann Vickers (Sinclair Lewis). **3.0,** Talk: Chemistry in the Curriculum of the High Schools. **3.30,** Concert from **Berlin (Witzleben).** **4.10,** Talk: Calderon's Dramatic Works. **4.30,** Chamber Music by Marianne Liedtke (Violin) and Egon Siegmund (Pianoforte): Sonata in D for Violin and Pianoforte (Handel); Sonata in A for Violin and Pianoforte (Mozart). **5.0,** Talk: Everyday Legal Problems in connection with the Civil Service. **5.30,** Making Music with Invisible Partners. **5.55,** Weather and Announcements. **6.0,** French Lesson. **6.30,** A Poem. **6.35,** Concert from **Breslau.** **7.20,** Talk: The Desire to Create and Mechanisation. **8.0,** Programme from **Leipzig.** **8.45,** Recital of Transylvanian Songs by Lula Mysz-Gmeiner. **9.10,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Musical Programme (to be announced). **11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**1.0 p.m.,** Gramophone Concert of Classical Music. **1.55,** Exchange and Market Prices. **2.20,** Talk for the Housewife. **2.35,** Recital of Old Italian Arias by Dorothea Schröder, with Harpsichord accompaniment. **2.50,** Recital for two Harpsichords. **3.15,** Talk on German Landscape. **3.30,** Concert by the Ufa Symphony Orchestra, in aid of the Winter Relief Fund; Conductor, Dr. Hellmuth Thierfelder: Overture, Figaro (Mozart); Kaiserwalzer (Joh. Strauss); Nocturne (Trapp); Song of the Volga Boatman (Glazunov); Folk Dance from Transylvanian (Balan); Two Pieces (Sibelius): (a) The Swan of Tuonela, (b) Valse triste; Two Pieces (Liszt): (a) Polonaise, (b) Chromatic Gallop. **4.30,** Talk: Programme for a German National Theatre. **4.50,** Programme for Young People. **5.10,** Max von Schillings Song Recital by Helga Stjerna (Soprano): Julinacht der Hufschmied; Wie wundersam; Das mitleidige Mädel; Freude soll an deinen Werken sein. **5.30,** Talk on Baron Georg von Omptedn, on his Seventieth Birthday. **5.55,** The Witzleben Station informs its Listeners . . . **6.0,** Topical Talk. **6.10,** Announcements. **6.15,** Talk on Music. **6.25,** Gramophone Records—with Commentary by Fritz Ganss. **7.5,** Accordion Recital: March, Durch Nacht zum Licht (Laukien); Liebeslieder-Walzer (Joh. Strauss); Overture, Gri-Gri (Lincke); Song from La Vallière (Mory); Prelude, Chorus and Dance from Das Pensionat (Suppé); Waltz, Eldorado (Jungherr); Onestep, The Student passes by (Dañez); Chinese Street Serenade (Siede); March, Deutschlands Ruhm (Schröder). **8.0,** Behind Typewriters—a Programme by Gerte Illing. **9.0,** Weather, News, and Sports Notes, followed by Dance Music. **11.0** (also on **Zeesen, 31.38 metres**). Bundschuh über Deutschland—a Play by Fritz Laukisch, with Music by Hans Kammeier.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

(PTT), 986 kc/s, 304 metres; 13 kW.—**6.30 p.m.,** News Bulletin, Exchange Quotations, and Market Prices. **6.40,** Talk: Bordeaux a Century Ago. **6.55,** Lottery Results. **7.0,** Programme for Children. **7.15,** Charades. **7.20,** News Bulletin. **7.30,** Concert of Classical and Modern Music.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by F. Dyk. Soloist: R. Maeudzinski (Pianoforte). **4.10,** See **Prague. 4.50,** Talk. **5.5,** Concert by the Station Wind Quintet. **6.0,** See **Prague. 6.10,** Literary Review. **6.25,** See **Brno. 7.25,** See **Prague. 7.40,** Popular Concert. **9.0,** See **Prague. 9.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc/s, 253 metres.**—**12.10 p.m.,** Old Vienna—Gramophone Concert. **12.45,** Time, Weather, News, Exchange, and Shipping Notes. **1.5,** Gramophone Concert: Selection from the Suite, Water Music (Handel); Die Quelle, Op. 81 (Schmalstich); Scene from the Fontane di Roma (Resphighi); Auf dem Wasser zu singen (Schubert-Liszt); Overture, Meeresstille und glückliche Fahrt (Mendelssohn). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.30,** Talk: Electric Supplies. **3.0,** Review of Books on Russia. **3.20,** Talk: The Third International Congress for Christian Archæology in Ravenna. **3.40,** Concert by the Station Orchestra, conducted by Franz Marszalek; Soloist, Hellmut Hallendorf (Tenor); Selection from Der Rosenkavalier (Richard Strauss); Overture, Fra Diavolo (Auber); Andante from Sylvia (Delibes); Overture, The Nuremberg Doll (Adam). **4.30,** Talk: Can we learn Political Economy from Frederick the Great. **4.50,** Talk: Intellectual Currents of the Day. **5.15,** French Lesson. **5.40,** Topical Talk. **6.0,** Talk on Cracow. **6.30,** Weather and Market Prices. **6.35,** Concert by the Station Orchestra, conducted by Franz Marszalek: Entr'acte Music from Die Madonna von St. Martino (Weigt); Harlekinade (Homann-Weber); Waltz (Waldteufel); March Potpourri, Wovon man spricht (Bernards). **7.0,** Former German Towns relate their History—Bozen, Thorn, Lemberg, and Memel—Historical Radio Sequence (arranged by Rudolf Mirbt). **8.0,** Concert of Chamber Music, relayed from **London. 9.0,** Time, Weather, News, Sports Notes, Market Prices, and Programme Announcements. **9.25,** Answers to Correspondents on Technical Questions. **9.35,** Talk on Mountaineering. **9.50** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**5.25 p.m.,** German Transmission: News, Elementary French Lesson, and Two Talks. **6.0,** See **Prague. 6.25,** Cabaret Programme. **7.25,** See **Prague. 7.40,** Concert by the Brno Brass Band, conducted by Jan Krenovsky. **8.15,** Concert of Compositions by Josef Kunc, on his Fiftieth Birthday, relayed from the Blahoslav Hall: Sonata for Violin and Pianoforte; Two Songs for Male Voice Choir. **9.0,** See **Prague. 9.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/c, 509 metres; 15 kW.—**11 a.m.,** Concert by the Small Station Orchestra, conducted by P. Lecmans: Overture, La princesse jaune (Saint-Saëns); Suite, Fête galante (Lacôme); Dance Air (Meyer-Helmund); Selection from Tosca (Puccini); Italian Rhapsody for Flute (Rougnon); Waltz, Gold and Silver (Lehar); Eysler Potpourri (Hruby). **12 Noon,** Journal Parlé. **12.10 p.m.,** Gramophone Concert: Overture, Si j'étais roi (Adam); Two Airs from Romeo and Juliet (Gounod); Scene from the Czardas (Hubay); Extracts from L'Arlésienne (Bizet). **1.0,** Programme for Schools. **4.0,** Dance Music from the Saint Sauveur Palais de Danse. **5.0,** Talk: Educational and Scientific Films. **5.15,** Song Recital by Marthe Angelici: Aria from The Messiah (Handel); Venetian Gondola Song (Mendelssohn); La procession (Franck); Trois tout petits enfants (Rasse); Heidenröslein (Schubert); Chanson triste (Duparc); Die Post (Schubert). **5.30,** Sonata Recital by Mme. Laoureux (Pianoforte) and Henry Gadeyne (Violin): Sonata in A (Fauré); Sonata in D Minor (Herberiegs). **6.15,** Talk: The Belgian Congo. **6.30,** Amusement Guide. **7.0,** Gramophone Concert of Variety Music. **7.15,** Colonel Chabert—Radio Play after Balzac's Novel (Theo Fleischman). **8.15,** Concert of Light Music by the Radio Orchestra. **9.0,** Journal Parlé. **9.10,** Hot Jazz, with Commentary. **9.40,** Dance Music on Gramophone Records. **10.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish. **11.0 a.m.,** Gramophone Concert of Classical Music. **12 Noon,** Journal Parlé. **12.10 p.m.,** Concert by the Small Station Orchestra, conducted by P. Lecmans. Soloist, M. Wigy (Violin). March (Heymann); Waltz, La barcarolle (Waldteufel); Selection from Gri-gri (Lincke); Slav Serenade for Violin (Douliez); Irish Melody, The Broken Lily (Alton); Tango, Manuela (Engel-Berger); Selection from Show Boat (Kern). **1.0,** Programme for Schools. **4.0,** Concert by the Radio Orchestra: Marche des communiers brugeois (Dubois); Flemish Sketches (Brusselmans); Tempo Tempo (Dostal); Spanish Dances (Albeniz); Ballet Music from La Cigale (Massenet); Four Ways (Coates). **4.45,** Programme for Children. **5.30,** Concert by the Small Station Orchestra, conducted by P. Lecmans. Soloist, M. Gilman (Flute). Overture, Heimkehr aus der Fremde (Mendelssohn); Ochsenmenuett (Haydn); Le mariage des roses (Franck); Danse lente (Franck); Selection from Figaro (Mozart); Flute Solo, Soir sur la plaine (Gambert); Fantasia, Unser Strauss (Weber). **6.15,** Educational Talk. **6.30,** Programme by Pirreke Pirrewit. **7.0,** Concert by the Symphony Orchestra, conducted by M. Meulemans: Ballet Music from Namouna (Lalo); Aan de Leie (Tyttenhove); Three Songs (Bayens); Gipsy Dance (Stadtfeld). **7.45,** Talk: The Middle Classes and their Influence on the Cost of Living. **8.0,** Orchestral Concert (contd.): Marche du Willemsfonds (Roels); Nocturne for Four Horns (Willems); Selection from Charlotte Corday (Benoit); Readings from Charlotte Corday (Gittens); Slav Dances (Dvorák); Marche de Librado (Alpaerts). **9.0,** Journal Parlé. **9.10,** Gramophone Concert. Part I: Variety Music. Part II: Old and New Dance Music. **10.0** (approx.), Close Down.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**4.0 p.m.,** Concert of Light Music by the Station Orchestra. In the interval at **5.0,** News and Time Signal. **6.0,** Talk: Romanian Music. **6.20,** Scientific Talk. **7.0,** Quartet in D, No. 18 (Mozart), by the Theodoresco Quartet. **7.30,** Talk. **7.45,** Recital on Two Pianofortes. **8.15,** Quartet in D Flat (Dohnanyi), by the Theodoresco Quartet. **8.45,** News. **9.0,** Concert by the Dinicu Orchestra, relayed from the Enesco Restaurant.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW.—Programme also relayed on **840 metres** from **6.0 to 11.0 p.m. 4.30 p.m.,** Cigány Concert. **5.30,** German Lesson. **6.0,** Song Recital by Gabrielle Relle: Aria from A Masked Ball (Verdi); Allerseelen (R. Strauss); Aria from Il Trovatore (Verdi); Gretchen am Spinnrad (Schubert); Prayer from Tosca (Puccini); Song (Brodi); Melody (Kurncz). **6.30,** Talk. **7.0,** Gramophone Concert of Popular Music. **9.0,** Talk, followed by Concert by the Opera House Orchestra, conducted by Ernst Dohnanyi.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by **Kalundborg, 260 kc/s, 1,153 metres.**—**11.0 a.m.,** Town Hall Chimes. **11.2 to 1.0 p.m.,** Concert from the Hotel d'Angleterre. **2.20,** Talk for the Housewife. **2.30,** Orchestral Concert, conducted by Lanny Gröndahl. Soloist: Else Marie Brunn (Violin); Turkish March, Ben-Aly-Bey (Menge); Concert Overture, Ruy Blas (Mendelssohn); Waltz, Gold and Silver (Lehár); Selection from Eugene Onegin (Tchaikovsky); Spanish Serenade, Glorietta (Hildoith); Entr'acte from L'Etoile du Nord (Meyerbeer); Jagtgalop (F. Nielsen); Violin Solos: (a) Legend (Wieniavsky), (b) Souvenir (Drdla), (c) Rêverie (Debussy), (d) Spanish Dance (Granados); Slav March (Tchaikovsky); Overture, Light Cavalry (Suppé); Waltz, Tout Paris (Waldteufel); Gamle Minder (Möller); Legend, Rosenwunder (Jessel); Czardas from Der Geist des Wojewoden (Grossmann); Gallop, Prestissimo (Waldteufel). **4.40,** Exchange and Market Prices. **4.50,** Talk: Open Air Schools. **5.20,** English Lesson. **5.50,** Weather and News. **6.15,** Time Signal. **6.30,** A Discussion: Laub's Music in Divine Service. **7.30,** Pianoforte Recital by Viktor Fischer.

Five Pieces (Mac Dowell); Humoresque, Jongleur (Paul Hindemith). 8.20, News Bulletin. 8.35, Relay of Foreign Stations. 11.0, Town Hall Chimes and Close Down.

CORK.—See **Athlone.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—**6.0 p.m.,** Miscellaneous Items and Announcements. **6.15,** Talk: The Production of Gold. **6.30 to 10.0, See Warsaw. 10.0,** Relay of Foreign Stations. **11.0,** Fanfare from St. Mary's Church.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11.0 a.m.,** Light Music on Gramophone Records. **11.30,** News Bulletin. **11.45,** Concert relayed from **Caen. 5.30 to 7.0,** Programme in English by the I.B.C. (These times are subject to alteration.) C. Danvers-Walker, B. McNabb and F. Lamping announcing. **5.30,** Military Band Concert for Bognor Listeners; Sussex by the Sea (Ward Higgs); Bells across the Meadows (Ketelbey); Wee MacGregor Patrol (Amers); Selection from Iolanthe (Sullivan); Policeman's Holiday (Ewing); In a Monastery Garden (Ketelbey); Tipperary (Judge Williams); Selection from The Pirates of Penzance (Sullivan). **6.0,** Orchestral Concert for Hastings Listeners: Demande et Réponse (Coleridge Taylor); Here's to the Old Days (Caldwell); I miss a little Missy (Coots); Absent-minded (Summers); Dancing Doll (Poldini); Mr. and Mrs. Sippi (Tierney); You don't have to tell me (Donaldson); Girl of a Million Dreams (Gay); The Skaters' Waltz (Waldteufel). **6.30,** Violin Recital for Easthourne Listeners. Trio: Evensong (Easthope Martin); Au mois d'Avril (Adlington); Moment musical (Schubert); The Lark (Tchaikovsky); Meditation from Thaïs (Massenet). Trio: Un peu d'amour (Silesu); Fandango (Godov-ky); Melody (Gluck); Valse Bluette (Drigo). Trio: Love's Old Sweet Song (Molloy). **7.0,** Local News and Variety Music on Gramophone Records. **7.30,** Radio Gazette. **8.0,** Programme relayed from Boulogne. **10.0** till Close Down. Programme in English by the I.B.C. (These times are subject to alteration.) **10.0,** Light Music: Laughing at Life; Building a Home for You; A Little Love Song; Out of Nowhere; Hello Beautiful; Just a Gigolo; Poor Kid; Mood Indigo; When I take my Sugar to Tea; You're the one I care for; Laughing at the Rain; Lady play your Mandoline; Mad about you; The Peanut Vendor; Two little blue little Eyes. **11.0,** Orchestral Music: Selection from The Gipsy Princess (Kálmán). The Child from Alsace (Lehar); Selection from Waltzes from Vienna (Griffiths); You are my heart's delight, from The Land of Smiles (Lehar); Selection from The New Moon (Romberg). **11.30,** Light Spanish Music: Madrid; Lady of Spain (Evans); With my Guitar and You (Snyder); 'Fonso my Hot Spanish Knight; Mama Inez (Grenet); Love Song of Old Valencia (Messire); Oh Sebastian; In Old Madrid; Thrill me. **12 midnight,** Variety Music: Let's all have a Sing Song; Alone in the Rain; I found you; The Zoo Keeper; Slippery Sam the Stoker; Molly; Let Love take care of you. **12.30 a.m. (Tuesday),** Songs: Go Home and tell your Mother (McHugh); Crying for the Carolines (Warren); Gipsy Melody (Nicholls); When you wore a Gingham Gown (Gilbert); Bye-bye Blues; Wasn't it nice? Say a little Prayer for me (Nicholls); Old New England Moon. **1.0 a.m.,** Accordion Duets: Medley of Swedish Airs; Waltz, Lorentina; My Florence; Waltz, The Blue Danube (Joh. Strauss); Festival March; Overture, Trieste; Marine March; Mazurka Lido Lady. **1.30,** Vocal Trios: A Pair of Blue Eyes; A Bench in the Park; You'll never realise; Orchestra: Sunnyside Up; Laughing down the Lane; I like to do things for you; Without a Song. **2.0,** Try a little Tenderness; The Old Man of the Mountains; When the Morning rolls around; Let's put out the Lights and go to sleep; Let's all sing like the Birdies Sing; Say it isn't so; Wanderer; How'm I doin'; Love me tonight; They all start whistling Mary; Round the Marble Arch; While we danced at the Mardi Gras; Happy go lucky you; It ain't no fault of mine. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.). Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW. Relayed by **Cassel, 1,220 kc/s, 245.9 metres.**—**5.50 p.m.,** English Lesson. **6.15,** Time, Announcements, Weather and Economic Notes. **6.20,** Jehol—The Magic City of the Manchu Emperor—A Radio Sequence. **7.5,** The Last Day—an Oratorio (Otto Jochum), relayed from the Saalbau; The Station Symphony Orchestra; The Frankfurt Teachers' Choral Society and Singakademie, a Motet Choir and Soloists. **8.30,** Gramophone Concert: Overture, Romeo and Juliet (Tchaikovsky); Melancholy Twilight (Giordano); Song from The Force of Destiny (Verdi); Variations on a Theme of Paganini's, Op. 35; Songs (Brahms): (a) Die Botschaft, (b) Nicht mehr zu dir zu gehen; Songs (R. Strauss): (a) Ständchen, (b) Zueignung. **9.20,** Time, News, Weather and Sports Notes. **9.45,** See **Langenberg. 11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**6.20 p.m.,** Hans Grimm reads from his own Works. **7.0** (from **Kiel**), Concert of Old and Modern Chamber Music by the Municipal Orchestra, conducted by Fritz Stein, relayed from the University. Soloists: Paul Hindemith (Viola and Viola d'amore), Ernst Träger (Violin), Joseph Kraft (Flute), and Richard Lauschmann (Oboe d'amore). Concertante Symphony for Violin and Viola (Mozart); Concerto for Flute, Oboe d'amore and Viola d'amore (Telemann), with String Orchestra and Harpsichord Accompaniment; Caprice (Busch); Sonata for Viola, Op. 25 (Hindemith); Three Pieces for Radio (Hindemith); conducted by the Composer. News in an interval. **9.0,** Time, Weather, News, Sports Notes and Police Report. **9.10,** Topical Talk. **9.20,** Concert, relayed from the Café Wallhof. In an interval at **9.50,** Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.**—**12.5 p.m.,** Gramophone Concert of Variety Music. In the interval at **12.20,** News. **1.30,** Exchange Quotations. **2.0,** Market Prices. **2.30,** Programme for Children. **3.0** (from **Danzig**), Concert by the Danzig Theatre Orchestra, conducted by Otto Selberg. Overture, Die Felsenmühle (Reissiger); Faureuther Porzellan Püppchen (Lincke); Waltz, Etincelles (Waldteufel); Ballet Fantasia (Paepke); March, Vom Rhein der Wein (Lincke); Potpourri, Schlager-Echo (Lindsay-Theimer); Waltz Intermezzo, Flitterwochen (Siede); Operetta Revue (Fetras); March, Fridericus Rex (Radeck). **4.45,** Review of Modern Books. **5.15,** Market Prices. **5.20,** Ice Report. **5.25** (from **Danzig**), Talk: Danzig Bürgermasters of the Seventeenth and Eighteenth Centuries. **5.50,** Talk: Memorable Days of the Week. **6.0,** Recital of German Baroque Songs, by Prof. Ludwig Hess. Two Songs (Christian Dedekind): (a) Schäfers Totenlied, (b) Wandel der Zeit; Ten Songs (Adam Krieger), with String Quartet and Harpsichord Accompaniment: (a) Der Auge Scheyn, (b) Der Unbestand, (c) Mein Lieb ist weiss wie Schnee, (d) Soll denn mein junges Leben, (e) Weicht ihr Gedanken, (f) Abendlied, (g) Bei mir muss sein ein Freund und Wein, (h) Junggesellenfreuden, (i) Ihr Fremde lasst uns lustig sein, (k) Seht nur, wie der Rheinwein. **6.30,** Elementary English Lesson. **6.55,** Wireless Technical Talk. **7.10,** News and Weather. **7.15,** Concert of Popular Music and Soldiers' Songs, by a Soldiers' Choir and a Military Band, conducted by Karl Kaus. March, Ein Manneswort (Franz Polack); Overture, Das Nachtlager in Granada (Kreutzer); Choir: (a) Ich hatte einst ein schönes Vaterland (Söhnel), (b) Wanderschaft (Zöllner); Fantasia on Four German Songs (Schmidt); Einkehr (Zöllner); Potpourri of Hunting Songs, Horrido (Kohlmann); March, Aus Stahl und Eisen (Rathke); Concert Overture in Style of Frederick the Great, Fridericiana (Zimmer); March, Old Comrades (Teike); Trumpet Solo, Auf der Wacht (Dierig); Potpourri of Soldier Songs (Hammemann); Marching Song Argonner Wald (Männecke); Preussenmarsch with Song (Golde). In the interval at **8.0,** News. **9.15,** Weather, News and Sports Notes.

HILVERSUM

Announced HUIZEN, 1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—Programme of the Christian Radio Society (N.C.R.V.).—**11.55 a.m.,** Gramophone Concert: Contralto Solo, An Old Violin (Fisher); Tenor Solos: (a) Beautiful Isle of Somewhere (Fearis), (b) All through the Night; Soprano Solo, with Violin, 'Cello, and Pianoforte accompaniment: Melody in F (Rubinstein). **12.10 p.m.,** Organ Recital from **Amsterdam. 1.40,** Talk for Schools. **2.15,** Sacred Music on Gramophone Records. **2.25,** Talk on Cooking. **2.55,** Dressmaking Lesson. **3.25,** Programme to be announced. **3.40,** Religious Programme. **4.40,** Concert by the Amsterdam Salon Orchestra, conducted by D. Kickens: Adagio religioso (Sinigaglia); Two Songs (Schubert): (a) Am Meere, (b) Frühlingsglaube; Impressions malgaches (Landeroin); Roses of the South (Joh. Strauss); Overture, The Bohemian Girl (Balfe); Potpourri, From Schubert's Sketch Book (Urbach); The Forge in the Forest (Michaelis); The Bayadere (Waterman); Bedouin Serenade (Loraine); Overture, Barbe bleue (Offenbach); March, Auf Wache (Rosey). **6.10,** Question Time. **6.55,** Time Signal. **7.10,** Police Notes. **7.25,** News Bulletin. **7.40,** Concert by the Bach Choir, relayed from a Church at The Hague: Fantasia and Fugue in G Minor for Organ (Bach); Weinen, Klagen, Sorgen, Zagen—Cantata No. 12 for Soloists, Choir, and Orchestra (Bach). Address; Choir: Zonnehuislied (Leydekker); Sonata in E for Oboe and Organ (Loeillet); Du, Hirte Israel, höre! from Cantata No. 104, for Soloists, Choir, and Orchestra (Bach); 'Cello Solos: (a) Cantilène (van Goens), (b) Andante from the Concerto in D (Haydn); Nun ist das Heil und die Kraft—Cantata No. 50 (Bach). **9.25,** News Bulletin. **9.35,** Serenade for Thirteen Wind Instruments (Mozart) on Gramophone Records. **9.55,** Organ Recital. **10.40,** Gramophone Records of Sacred Music. **11.10** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced HILVERSUM, 160 kc/s, 1,875 metres; 8.5 kW. Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).—**11.40 a.m.,** Time Signal. **11.41,** Concert of Light Music. **1.55 to 2.10 p.m.,** Interval. **2.10,** Popular Music on Gramophone Records. **3.40,** Pianoforte Recital by Egbert Veen: Sonata in A (Mozart); Spinning Song (Mendelssohn); Rondo (Mendelssohn). **4.10,** Talk by Max Tak, illustrated by Gramophone Records. **5.10,** Concert by the Kovacs Lajos Orchestra. Soloist: Bob Scholte (Songs). **6.10,** Book Review. **6.40,** Orchestral Concert (contd.). **7.10,** Talk. **7.40,** Time and News. **7.45,** Concert by the Wireless Orchestra, conducted by Nico Treep. Soloist: Isobel Lamond (Songs): Overture, L'Isola disabitata (Haydn); Recitative and Aria from Rinaldo (Handel); Overture, Figaro (Mozart); Aria, Ah perfido (Beethoven); Spain and Hungary, from the Suite Aus aller Herren Länder (Moszkowsky); Aria from Othello (Rossini); Spanish Dance (Falla); Recitative and Aria, The King of Thule (Berlioz); Aria from The Damnation of Faust (Berlioz). **8.40,** Concert by a Male Voice Choir. **8.55,** Concert by the Wireless Orchestra, conducted by Nico Treep: Marche lorraine (Gannez); Waltz, España (Waldteufel); Dance of the Hours, from La Gioconda (Ponchielli). **9.20,** Song Recital by Mariette Serlé. **9.40,** Orchestral Concert (contd.): Wiener Operetten Revue (Rohrecht); Die kleine Kompagnie (Ganglberger); Japanese Bell Dance (Yoshitomo); Hals-und Beinbruch (Morena). **10.10,** Popular Music on Gramophone Records. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

NICE, 1,202 kc/s, 249.6 metres; 0.8 kW.—**9.30 to 10.30 p.m.,** Programme arranged in English by the I.B.C.: H. K. Hitchcock announcing.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by **Helsinki, 815 kc/s, 368.1 metres.**—**5.15 p.m.,** Agricultural Report. **5.25,** Talk. **6.5,** Concerto in G (Beethoven), by Kurt Wallden (Pianoforte), and the Helsinki Municipal Orchestra, conducted by Toivo Haapanen, relayed from the University. **6.50,** Recitations. **7.15,** Song Recital by Pia Ravenna. **7.45,** News in Finnish. **8.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert, conducted by Eysoldt: March, Unter dem Siegesbanner (Blon); Rakoczy Overture (Keler-Bela); Selection from Oberon (Weber); Flower Waltz (Tchaikovsky); Suite, At the Circus (Lautenschlager); Schön Rosmarin (Kreisler); Cherry Blossom (Albert); Selection from The Bird Fancier (Zeller). In the interval at **1.0 p.m.,** News. **1.30,** Sponsored Programme, with Gramophone Records. **2.30,** Exchange and Time Signal. **2.50,** Programme for Children. **3.20,** Haydn Concert for Young People. Mixed Choir, Organ, and Orchestra: Piece from Danklied; Overture in D; Hymn for Mixed Choir, Organ, and Orchestra; German Dances. **4.0,** Orchestral Concert, conducted by Kühn. Soloist, Schneiderhan (Violin). Overture, Das Liebesverbot (Wagner); Violin Concerto No. 8 (Spohr); Tone Poem, Jugend (Ehrenberg); March from The Cid (Cornelius). **5.20,** Talk for Parents. **5.45,** Weather, Time, Exchange, and Sports Notes. **6.0,** Talk for Women. **6.20,** Reading of Unpublished Works—Poems (Ludwig Schulte). **6.30,** Talk: Economics and Culture—A Century of the German Customs Union. **6.55,** First General News. **7.0,** Gramophone Records of Edwin Fischer (Pianoforte); Chromatic Fantasia and Fugue in D Minor (Bach); Prelude and Fugue in D, from Das Wohltemperierte Klavier (Bach). **7.20,** Programme to be announced. **9.0,** News and Sports Notes. **9.15,** Programme of Songs and Poems. **9.45,** Serenade, conducted by Wolf. **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by **Dresden, 941 kc/s, 319 metres.**—Concert of Popular Songs on Gramophone Records. **12 Noon,** News, Weather and Time. **12.15 p.m.,** Light Music on Gramophone Records, followed by Exchange Quotations. **1.0,** Art and Film Review. **1.45,** Reading: Der zerbrochenen Tassen (Klaus Herrmann). **2.0,** Talk for Women. **2.35,** Exchange and Market Prices. **3.0,** Concert by the Station Orchestra, conducted by Theodor Blumer: Overture, Das tapfere Schneiderlein (Hanel); Scandinavian Music (Hamerik); Selection from The Golden Cross (Brüll); Prelude to Die Zwillinge (Weis); Brune on blonde (Waldteufel). **4.30,** Weather and Time. **4.50,** Exchange Quotations. **5.0,** Educational Talk: The Country School-child. **5.30,** Talk: A Thousand Years of German Literature—Grobianism. **5.50,** The Leipzig Station informs its Listeners . . . . **6.0,** Concert by the Emdé Orchestra: Overture, Nebuchadnezzar (Verdi); Waltz, Nachtschwärmer (Ziehrer); Intermezzo, Puppenspicle (Lederer); Spring Serenade (Ordla); Pudding Potpourri (Morena); Two Songs from Frederica (Lehar); Marionetten-Brantzug (Rathke) March, Glückauf, mein Vaterland (Schröder). **7.0,** Talk: Fresh Sources of Electric Power. **7.30,** Symphony No. 3 in G Minor (Richter), by the Dresden Philharmonic Orchestra, conducted by Wilhelm Reuss, with Introductory Talk and Folk Songs. Soloist: Milda Thiele (Soprano). **9.5,** News Bulletin. **9.20** (approx.), Light Music and Dance Music on Gramophone Records. **10.30** (approx.), Close Down.

LINZ.—See **Vienna.**

LWOW

788 kc/s, 381 metres; 16 kW.—**6.0 p.m.,** Art Notes. **6.15,** Miscellaneous Items. **6.30,** See **Warsaw. 9.0,** Talk. **9.15,** See **Warsaw. 10.30** (approx.), Close Down.

LYONS

LA DOUA (PTT), 644 kc/s, 465.8 metres; 1.5 kW. **6.30 p.m.,** Radio Gazette for Lyons and the South-East. **7.30,** Concert: Double Concerto (Bach); Concerto (Vivaldi); Fraue (de Bréville); Scenes from Orpheus (Gluck); Spanish Melodies (Falla); News after the Programme.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**10.30 p.m.,** Concert of Popular Music. **10.45,** Radio Chronicle. **11.0,** Concert of Popular Music (contd.). **11.35,** Sports and Bull-fighting Notes. **11.40,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO (EAJ7); 707 kc/s, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, and Request Gramophone Concert. **8.15,** News Bulletin. **8.30** (approx.), Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**5.30 p.m.,** German Transmission: Recitations and Sketch. **6.0,** See **Prague. 6.25,** See **Brno. 7.25,** See **Prague. 7.40,** See **Brno. 9.0,** See **Prague. 9.15** (approx.), Close Down.

MOSCOW

230 kc/s, 1,304 metres; 100 kW.—**5.30 p.m.,** Tosca—Opera (Puccini), relayed from the Grand Theatre. **8.0,** Talk in English: The Skilled Worker and Small Trader in the Soviet Union.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**4.0 p.m.,** Orchestral Concert, conducted by Erich Kloss: Overture to a Revue (Lincke); Slav Cradle Song (Nernda); Scenes from Die Königskinder (Humperdinck); Invitation to the Dance (Weber); Selection from The Blue Mazurka (Lehar); Hochzeitsständchen (Klose); Rêve (d'Ambrosio); Czardas No. 8 (Michiels). **5.15,** Talk: Petroleum Supplies in Germany. **5.35,** Talk: The German Post Office. **5.55,** Time, Weather and Agricultural Notes. **6.5,** Wind Instrument Concert: Congress Overtures (Wagner); Selection from Tannhäuser (Wagner); Die Fahne hoch (Redl); Waltz, Am Wörthersee (Koschat); Potpourri of Historic Marches (Kott); March (Schilling). **7.10,** Recitations of Old German Love Poems. **7.20,** The Ninth Symphony (Beethoven) by the Munich Philharmonic Orchestra, Two Choirs, and Soloists, relayed from the Tonhalle. Conductor: Siegmund von Hausegger. **8.25,** Talk: Good German

Books. 8.50, The Serenades of Haydn, Mozart, Schubert, Brahms and Strauss, by the Small Station Orchestra, conducted by Erich Kloss. Commentary by P. P. Althaus. 9.20, Time, Weather, News and Sports Notes. 9.45, Concert from **Langenberg.** 11.0 (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

KRINGKASTINGSELSKAPET, 277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredrikstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.**—4.0 p.m., Concert by the Radio Ensemble, conducted by Oscar Gustavson. 5.0, German Lesson. 5.30, Theatre Review. 6.0, Announcements, Weather, and News. 6.30, Agricultural Talk. 7.0, Political Review. 7.30, Concert by the Fredriksstad Music Society. 8.40, Weather and News. 9.0, Topical Talk. 9.15, Concert of Light Music. 9.45 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

553 kc/s, 537.6 metres; 3 kW.—7.0 p.m., Dopolavoro Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 7.20, Light Music on Gramophone Records. 7.30 (in an interval)), Time Signal and Announcements. 7.45, Concert of Chamber Music. Soloists: Nini Misiti (Pianoforte), E. Paladino ('Cello), and M. Diamante (Flute). Pianoforte Solo, Chromatic Fantasia and Fugue (Bach); Sonata for 'Cello and Pianoforte (Di Donato); Two Movements from the Suite for Flute (Longo); Pianoforte Solos: (a) Nocturne, Op. 48 (Chopin), (b) Waltz, Op. 64 (Chopin); 'Cello Solos: (a) Aria (Porpora), (b) Capriccio (Piatti), (c) Tarantella (Croce); Flute Solos: (a) Concert Study (Mercadante), (b) Dance of the Marionettes (Kohler); Pianoforte Solos: (a) Souvenirs (Liszt), (b) Les Jeux d'eaux à la Villa d'Este (Liszt). After the Concert, Light Music on Gramophone Records. 9.55, News Bulletin.

PARIS

EIFFEL TOWER (FLE), 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.**, Talk on the Theatre. **6.0**, Le Journal Parlé. **7.20**, Weather Report. **7.30**, Messager Operetta Concert: Songs from François les bas bleus, Véronique, Fortunio, Les p'tites Michus, La Fauvette du Temple and Isoline. **9.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**5.45 p.m.**, Le Journal Parlé. **6.0**, Hot Jazz on Gramophone Records. **6.30**, Sponsored Concert. **7.0**, Medical Talk. **7.5**, Talk: Motor Cars. **7.30 to 9.40**, Sponsored Concerts. **9.40**, News Bulletin.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**5.45 a.m.**, Physical Culture. **6.30**, Weather and Physical Culture (contd.). **6.45**, The Nutcracker Ballet (Tchaikovsky), on Gramophone Records. **7.0**, Press Review and Weather. **11.0**, Concert by the Radio Orchestra: Overture, Stratonice (Méhul); Selection from Der Freischütz (Weber); Two Arias from La Juive (Halévy), on Gramophone Records; Selection flom Le roi de Lahore (Massenet); Spinning Chorus from The Flying Dutchman (Wagner); March and Bridal Chorus from Lohengrin (Wagner). **12 Noon**, Exchange, News, and Weather. **12.5 p.m.**, Pianoforte Recital by Marthe Rennesson: Tambourin (Rameau); Le Coucou (Daquin); Pastorale variée (Mozart); Mazurka (Chopin); Berceuse (Chopin); Waltz (Chopin); La Neige (Delibes); Serenade to the Moon (Pugno); Le petit âne blanc (Ibert). **12.30**, Exchange. **12.35**, Orchestral Concert (contd.): Ballet Music from The Bartered Bride (Smetana); Cydalise et le chèvre-pied (Pierné). and Un dimanche basque (Laparra). **1.0**, Exchange. **2.45**, Exchange and Market Prices. **5.10**, Agricultural Talk. **5.30**, Elementary English Lesson. **5.50**, Film Review. **6.0**, Review of New Books. **6.20**, Concert by the Radio Paris Orchestra: Light Overture (Luigini); Suite pittoresque (Fourdrain); L'entrée des Fétards (Février); Marche bohémienne (Filippeci). **6.45**, Commercial Prices and News. **6.50**, Gardening Talk. **7.0**, Les Brigands—Operetta (Offenbach). In the intervals at **7.30**, News and Weather, at **7.40**, Review by Paul Reboux, and at **8.15**, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.**, Work-a-day Thoughts. **9.5**, Business News. **9.15**, Ballroom Promenade. **9.30**, Weather Report. **9.32**, Market Report. **9.45**, Blue Ridge Buddies. **9.57**, David Lawrence Dispatch. **9.58**, Programme Announcements. **10.0**, Programme to be announced. **10.15**, Dick Daring, from **New York.** **10.30**, The Singing Lady, from **New York.** **10.45**, Little Orphan Annie. **11.0**, Booth Tarkington's Maude and Cousin Bill, from **New York.** **11.15**, Time Signal. **11.16**, Weather Report. **11.17**, Teaberry Sport Review. **11.22**, Press News Reeler. **11.27**, Strange Facts. **11.29**, Temperature Report—Philadelphia Company. **11.30**, KDKA Orchestra. **11.45 to 1.45 a.m. (Tuesday), New York** Relay. **11.45**, To-day's News by Lowell Thomas. **12 Midnight**, Pepsodent Amos 'n' Andy. **12.15 a.m.**, Tastyeast Jesters. **12.30**, Five Star Theatre—Marx Brothers. **1.0**, Chipot Club Eskimos. **1.30**, Time Signal and Don Carney—A Talk for Dog Lovers. **1.45**, Programme to be announced. **2.0 to 3.30, New York** Relay. **2.0**, Sinclair Minstrels. **2.30**, Jack Frost Melody Moments. **3.0**, Three Keys. **3.15**, Vic and Sade. **3.30**, Bridge School of the Air, by E. Hall Downes. **3.45**, Samuel Di Primio (Tenor). **4.0**, Time Signal. **4.1**, Teaberry Sport Review. **4.11**, Temperature Report—Philadelphia Company. **4.12**, Weather Report. **4.13**, KDKA Artist Bulletin. **4.15** Press Last Minute News. **4.20**, Smith Ballew and his Orchestra. **4.58**, KDKA Artist Bulletin. **5.0**, Hotel Bismarck Orchestra, from **New York.** **5.30**, Time Signal, and Goodnight.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**3.10 p.m.**, See **Bratislava.** **4.10**, Talk: The Holy Sepulchre at Jerusalem. **4.20**, Talk: The Teacher and Politics. **4.30**, Programme for Children. **4.50**, Variety Music on Gramophone Records. **5.5**, Agricultural Talk. **5.15**, Talk for Workers. **5.25**, News in German. **5.30**, German Transmission: Two Talks: (a) The Art of Portrait Painting, (b) Economics. **6.0**, Chimes. **6.1**, News Bulletin. **6.10**, English Conversation. **6.25**, See **Brno.** **7.25**, Talk: The Schools and Religion. **7.40**, 'Cello Recital by Bohus Heran: Suite in C (Bach); Sonata in G for 'Cello and Pianoforte (Sammartini). **8.0**, Time Signal. **8.5**, Concert by the Odkolek Band. **9.0**, Time Signal. **9.1**, News Bulletin. **9.15** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **LAUSANNE, 442 kc/s, 680 metres;** and **GENEVA, 395 kc/s, 760 metres.**—**5.0 p.m.**, Programme for Children. **5.30** (from **Lausanne**), German Lesson. **6.0** (from **Lausanne**). Weather Forecast, News Bulletin, and Announcements. **6.30** (from **Lausanne**), Lesson for Apprentices in Carpentry. **7.0** (from **Geneva**), Humorous Readings. **7.15** (from **Geneva**), Concert of Chamber Music: Sonata da Camera (Pierné); Suite, 1922 (Hindemith); Quartet (Fauré). **8.0**, Cabaret Programme arranged by Rny Blag with the Co-operation of the Broadcasting Serenaders, conducted by Jean-Marc Pasche. **9.0**, News Bulletin and Weather Forecast. **9.10** (from **Geneva**), Talk: The Work of the League of Nations. **9.30** (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—**8.30 p.m.**, Weather Report. **8.40**, Musical Programme and Announcements. **9.0**, Chimes. **9.2**, News. **9.30**, Reading. **10.0**, Popular Concert by the Station Quartet, with Songs.

RJUKAN.—See **Oslo.**

ROME

680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,810 kc/s, 25.4 metres.**—**12 Noon,** Time and Announcements. **12.2 to 1.15 p.m.**, Gramophone Concert of Popular Music. In the interval at **12.30**, Giornale Radio and Exchange. **3.45**, Children's Radio Review. **4.10**, Announcements. **4.15**, Exchange and Giornale Radio. **4.30**, Pianoforte Recital by Alfred Cortot, relayed from the Royal Philharmonic Academy. **6.0 (Naples),** Shipping and Sports Notes. **6.10**, Agricultural Report and Dopolavoro Notes. **6.20**, Giornale Radio. **7.0**, Time, Announcements and Light Music on Gramophone Records. **7.30**, Sports Notes and Tourist Report. **8.0**, See **Turin.** **9.0**, Humorous Programme. **9.15**, Concert of Light Music. **9.55**, News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF,** and by **W2XAD** (See Short-Wave List).—**7.30 p.m.**, The Revolving Stage, from **New York.** **8.0**, Talk, from **New York.** **8.15**, Antoinette Halstead (Contralto). **12 Midnight,** Boy Scout Programme. **12.15 a.m. (Tuesday),** Stock Reports. **12.30**, The Upstaters. **12.45 to 2.30, New York** Relay. **12.45**, The Goldbergs. **1.0**, Soconyland Sketches. **1.30**, Voice of Firestone. **2.0**, A. and P. Gipsies. **2.30**, Buick Programme, Whiteman's Orchestra, followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres.**—**11.28 a.m.**, Time Signal from Neuchâtel Observatory. **11.30**, Weather and News. **11.40** (from **Basle**), A Musical Competition on Gramophone Records. **12.35 p.m.**, Weather and Exchange. **12.40** (approx.), **to 2.30**, Interval. **2.30** (from **Berne**), Bavarian, Austrian and Hungarian Folk Music on Gramophone Records. **3.30** (from **Berne**), Dajos Bela and his Band on Gramophone Records. **4.30**, Weather. **4.32 to 5.30**, Interval. **5.30** (from **Berne**), Talk: An Indian Tribe in Eastern Europe. **6.0**, Time and Weather. **6.30** (from **Berne**), A Journey to the Tourist Congress—Sketch (Walter Schweizer). **7.0** (from **Zürich**), Symphony Concert, relayed from the Concert Hall. Soloist: Samuel Dushkin (Violin). **9.0** (approx.), Weather, News and Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

RADIOTJANST (SASA), 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 212.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**4.5 p.m.**, Talk in German. **4.30**, Popular Music on Gramophone Records. **5.30**, A Play (Margit Palmaer). **5.55**, Violin Recital by Issay Mitnitzky. **6.15**, Weather and News. **6.30**, Talk. **7.0**, Orchestral Concert. Wedding March (Widor); Second Peer Gynt Suite (Grieg); Allegretto pastorale from Nordland (Jonsson); Saknad, for 'Cello and String Orchestra (Hägerstrand). In the Steppes of Central Asia (Borodin); Valse romantique (Sibelius); In the Garden (Goldmark); Norwegian Rhapsody, No. 2 (Svendsen); Overture, Oberon (Weber). **8.25**, Parliamentary Report. **8.45**, Weather and News. **9.0**, Concert of Light Music. **10.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**10.30 a.m.**, Gramophone Concert of Light Music. **11.0**, Concert of Jazz Music, conducted by M. Roskam. **11.45**, News. **12 Noon,** Time and Exchange. **12.5 p.m.**, Orchestral Concert of French Operetta Music, conducted by Maurice de Villers: Overture, Orpheus in the Underworld (Offenbach); Selection from Le jour et la nuit (Lecocq); Selection from Gillette de Narboune (Audran); Overture, Rip van Winkle (Planquette); Selection from (a) Véronique (Messager), (b) Ciboulette (Hahn). **1.0 to 3.15 p.m.**, Interval. **3.15**, Concert relayed from **Radio Coloniale (Paris), 11,705 kc/s (25.63 metres):** Suite Algérienne (Saint-Saëns); L'Eglise de Village (de la Presle); Second Suite from Peer Gynt (Grieg); Cara Piccina (Lama); Selection from Benvenuto Cellini (Diaz); Chanson des Noisettes (Dupont); Selection from La Mascotte (Audran). **4.15**, Talk in French on Electricity. **4.30**, Vincent d'Indy Concert on Gramophone Records: (a) (Wallenstein's Camp, (b) Introduction to Fervaal. **5.0**, Talk in French on Films. **5.15**, Talk in French: Through Lorraine. **5.30**, Concert by the Municipal Theatre Orchestra, relayed from Metz. Conductor: H. Ehrmann. Soloist: M. Culenaere ('Cello). Overture, Les Cloches de Corneville (Planquette); Selection from Si j'étais roi (Adam); 'Cello Solos: (a) Air grave, (b) Tarantella, Du nord au midi (Paquet); Selection from Les dragons de Villars (Maillart); Serenade, Amina (Lincke); Selection from Coppélia (Delibes); Selection from Pas sur la bouche (Yvain). **6.30**, Time and News. **6.45**, Light Music on Gramophone Records. **7.20**, Lottery Results. **7.30**, Arias and Songs: Concert by the Cercle artistique de l'Est, relayed from **Nancy:** Quartet from Le roi d'Ys (Lalo); Five Airs from The Magic Flute (Mozart); Duet from The Snow Maiden (Rimsky-Korsakov); Air d'Orontéa (Cesti); Une jeune fille parle (de Vréville); Two Airs from Chansons printanières (Huë); Au temps des fées (Koechlin); Hebrew Melody, Kadelisch (Ravel); A Phidylé (Hahn); Selection from Antar (Dupont). **9.15** (approx.), Close Down.

STUTTGART

MUHLACKER, SUDDEUTSCHER RUNDFUNK, 832 kc/s, 360.5 metres; 60 kW. Relayed by **Freiburg, 527 kc/s, 570 metres.**—**12.30 p.m.**, Concert from **Langenberg.** **1.0 to 1.15**, Musical Programme arranged by the Post Office. **1.15 to 1.30** (from **Karlsruhe**), Musical Programme arranged by the Post Office. **1.30**, Spanish Lesson. **2.0 to 2.30**, Elementary English Lesson. **4.0**, See **Munich.** **5.0**, Time, Weather, and Agricultural Notes. **6.10**, Talk: The Economic Life of Germany. **5.50**, See **Frankfurt.** **6.15**, Time and News. **6.30** (from **Karlsruhe**), Literature and Music of the Northern Countries—Mountains—People—Sea. **8.30**, Arnolt Bronnen reads from his New Book, Erinnerung an eine Liebe. **9.0**, Time, News, Weather, and Programme Announcements. **9.20**, Chess Lesson. **9.45**, See **Langenberg.** **11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—**5.15 p.m.**, Viennese Music. **5.45**, Tourist Talk. **6.0**, Popular Melodies. **6.15**, News, Racing Results and Market Prices. **6.25**, Local News. **6.30**, Orchestral Music. **6.45**, Opéra-Comique Songs. **7.0**, Military Music. **7.15**, Airs from Operettas. **7.30**, Accordion Solos. **7.45**, Music Hall Programme. **8.15**, Orchestral Music. **8.30**, Opera Music: Arias from Lohengrin (Wagner); Don Giovanni (Mozart); and Sigurd (Reyer). **8.45**, Violin Solos. **9.0**, Recitations. **9.15**, North African News. **9.30**, Concert for Listeners in Morocco: Clavelitos (Valverde); Petite close (Charlys); Suite orientale (Popy); Duet from Werther (Massenet); Selection from Il est charmant (Moretti). **10.0**, Popular Concert. **10.30 to 11.0**, Programme in English arranged by the I.B.C.: W. Brown-Constable announcing: Dance Music: I Love a Parade; The Flies crawled up the Window; Good-night Vienna; Can't we Meet Again?; I want to Cling to Ivy; Sweethearts of Yesterday. **10.57**, I.B.C. Good-night Melody. **11.0**, Weather and Announcements. **11.5**, Dance Music. **11.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**4.30 p.m.**, See **Rome.** **6.5 to 6.35**, See **Turin.** **6.35**, Orchestral Music from the Café Dante. **7.0** (approx.) till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**4.30 p.m.**, See **Rome.** **6.5**, Giornale Radio. **6.30**, Time, Announcements and Tourist Report. **6.35** (approx.), Gramophone Records of Variety Music. **7.0**, Giornale Radio, Weather and Gramophone Records (contd.). **7.45**, Talk. **8.0**, Song Recital by Tito Schipa (Tenor). Orchestral Music in the intervals. **9.0**, A Comedy in One Act. **10.0**, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—**10.0 to 10.15 a.m.**, Religious Information in Italian. **7.0 to 7.15 p.m.**, Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**3.50 p.m.**, Concert of Light Music by Edi Csóka and his Band. **5.5**, Recital of Danish Folk Songs by Helge Roswaenge, with Introductory Talk by the Danish Vice-Consul. **5.45**, Talk for Workers. **6.0**, Talk: Spring in Popular Customs. **6.20**, Talk: Books and Works of Reference in Connection with the Week's Talks. **6.25**, English Lesson. **6.50**, Time, Weather and Programme Announcements. **7.0**, Popular Concert by Otto Wacek and his Band: Overture, Karneval in Rom (Joh. Strauss); Waltz from Die schöne Risette (Fall); Selection from The Bird Fancier (Zeller); Gavotte, Die kleine Marquise (Waeck); Auf dem Sommerheidenweg (Silving); Selection from Viktoria and her Hussar (Abraham); Rainer-Marsch (Mahr). **8.0**, Concert of German Music: Partita in E Minor (Bach); Aria from Almira (Handel), with Oboe Obbligato; Hört, ihr Augen, auf zu weinen—Aria for Soprano with Oboe obbligato (Bach); Bald von Fürchten, bald von Hoffen (Gluck); Suite (Bach); Trio in E Flat for Pianoforte, Clarinet and Viola (Mozart). **9.20**, News, Weather and Announcements. **9.35**, Dance Music by Juan Llossas and his Band, relayed from Hübners Kursalon.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**10.51, a.m.**, Time Signal and Bugle Call from the Tower of St. Mary's Church, Cracow. **11.5**, Programme Announcements. **11.10**, Light Music on Gramophone Records. **12.20 p.m.**, Weather Forecast. **12.25 to 2.10**, Interval. **2.10**, Announcements. **2.15**, Economic Notes. **2.25**, Traffic Report. **2.35**, Answers to Correspondents. **2.50**, Popular Music on Gramophone Records. **3.25**, Elementary French Lesson. **3.40**, Talk: Taxation. **4.0**, Song and Pianoforte Recital by Mme. T. Skonieczna-Czernicka (Mezzo-Soprano) and E. Horodyski: Variation in C Minor (Beethoven); Fantasia in C (Schumann); Songs. In the interval, Announcements. **4.55**, Programme Announcements. **5.0**, Talk on History. **5.20**, News. **5.25**, Light Music. **6.0**, Miscellaneous Items. **6.20**, Answers to Agricultural Correspondence. **6.30**, Topical Talk. **6.45**, Radio Journal. **7.0**, Die romantische Frau—Operetta in Three Acts (Weinberger). In the interval, Sports Notes and Radio Journal. **9.0**, Technical Notes. **9.15**, Dance Music. In the interval at **9.55**, Announcements and Aviation Weather Report.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—**7.0 p.m.**, Concert of Music by Miroslav Schlick. **8.0**, Yugoslavian Symphonic Dances (Dobronic), by the Orchestra of the State Academy of Music, conducted by Fran Lhotka. **9.30**, News and Weather.

ZURICH.—See **Schweizerischer Landessender.**

TUESDAY

MARCH THE TWENTY-EIGHTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Recital of Sir Landon Ronald's songs. Orchestral concert.
LONDON REGIONAL	An Ashley Sterne revue. Orchestral concert.
MIDLAND REGIONAL	Symphony concert from the Town Hall, Northampton.
NORTH REGIONAL	"Hounds of High Heaton," feature programme.
WEST REGIONAL	"The Sleepless Soul," a fantasy by Froom Tyler.
SCOTTISH REGIONAL	Mr. T. Henderson: The Foundations of Scottish Song.
BELFAST	Vaudeville programme.

ABROAD

BARI	7.35 p.m. Concert by a Plucked String Quartet.
BRUSSELS (No. 2)	7 p.m. Symphony orchestra, conducted by J. Kumps.
BUCHAREST	7 p.m. Symphony concert by the Station Orchestra.
COPENHAGEN	7 p.m. Operetta: "Drei alte Schachteln" (Kollo).
HILVERSUM	6.40 p.m. Pianoforte duets by Ethel Bartlett and Rae Robertson.
LEIPZIG	9.20 p.m. Orchestral concert, conducted by Hans Jessen.
OSLO	7 p.m. Operetta: "La Belle Hélène" (Offenbach).
PITTSBURGH	3 a.m. (Wed.). The Baltimore Symphony Orchestra, from New York.
PRAGUE	8.1 p.m. The Los Aguilar Lute Quartet.
STUTTGART	7.40 p.m. The Philharmonic Orchestra, conducted by G. Görlich.
WARSAW	9.30 p.m. Mozart concert by the Station Orchestra.

ALGIERS

825.3 kc/s, 364 metres; 13 kW.—**7.0 p.m.,** Financial News. **7.10,** Shipping Notes. **7.15,** Agricultural Report and Weather Forecast. **7.20,** Orchestral and Balalaika Music. **7.35,** Two Scenes (Molière): (a) from Les précieuses ridicules, (b) from L'Ecole des femmes. **7.55,** News Bulletin. **8.0,** Time Signal. **8.2,** Talk: Touring in the Sahara. **8.15,** Concert of Chamber Music. Two Pieces for Flute, Clarinet, Bassoon and Horn (Ropartz); Quintet for Wind Instruments (Taffanel). **8.40,** News. **8.45,** Talk on Algiers. **9.0,** Concert of Oriental Music. **9.30,** News. **9.35,** Oriental Music (contd.). **9.55,** News. **10.0** (approx.), Close Down.

ATHLONE

725 kc s, 413 metres; 60 kW.; and **CORK, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.10,** British Market Report. **7.20,** News. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** Reading of Poems. **8.0,** The Station Orchestra. **8.30,** Soprano Solos by Gladys MacNevin. **8.45,** Variety Programme. **9.15,** The Station Orchestra. **9.35,** Song Recital by Peter Dunn (Tenor). **9.50,** Violin Duets. **10.15,** The Station Orchestra. **10.30,** Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO-BARCELONA; Call EAJ1; 860 kc s 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations and Art Notes. **8.0,** Light Music on Gramophone Records and News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast and Messages to Seamen. **9.10,** Concert of Sardanas. **9.15,** Football Results and Light Music on Gramophone Records. **10.0,** Los Cadetes de la Reina—Musical Comedy in One Act (Luna) followed by La Revoltosa—Musical Play (Chapi). **11.0** (in an interval), News Bulletin. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc s, 269.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Report, Tourist Report, and Dopolavoro Notes. **7.20,** Giornale Radio. **7.30,** Time and Announcements. **7.35** (approx.), Concert by a Plucked String Quartet: Overture, Giovanna d'Arco (Verdi); Ricordo di Roma (Francia); Second Movement from the Pathetic Symphony (Beethoven); Selection from I Puritani (Bellini). **8.10,** A Night in the Middle Ages—Play in One Act (Caretta). **8.40,** Concert (contd.): Overture, Roma Torino (de Giovanni); Bolero (Bonatti); Serenade (Drdla); Divertissement from Fra Diavolo (Auber); I montanari (Ancilotti). **9.0,** Gramophone Records of Popular Music. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**4.0 p.m.,** Talk. **5.55,** Time and Programme Announcements. **6.0,** Song Recital by Anni Wünsche. Song (Zajc); Arias from: (a) Rusalka (Dvorák), (b) La Bohème (Puccini); Ave Maria and Penso (Tosti); Parla Waltz (Arditi). **6.30,** Talk. **7.0,** Variety Music on Gramophone Records. **7.30,** Concert by the Philharmonic Orchestra. **9.15** (approx.), News.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**1.0 p.m.,** Gramophone Concert relayed from **Berlin (Witzleben). 2.0,** Talk for Young People. **2.30,** Weather and Exchange. **2.45,** Reading, Das wartende Land (Paul Fechter). **3.0,** Talk for Women: Women and Eugenics. **3.30,** See **Leipzig. 4.10,** Talk in Connection with the Centenary of the Evangelical Deacon's Association. **4.30,** Recital of German Arias by Margarete Pohland (Soprano); Three Arias (Handel): (a) Cleopatra's Aria from Julius Caesar, (b) Aria from Tamerlano, (c) Aria from Acis und Galathea; Two Arias from Figaro (Mozart). **5.0.** Dialogue on Political Economy. **5.30,** The Understanding of Music—a Dialogue with Two Amateurs. **5.55,** Weather and Announcements. **6.0,** Talk: The Political Struggle against the War Guilt Accusations. **6.30,** A Poem. **6.35,** Political Press Review. **7.0,** See **Vienna. 9.0,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Musical Programme (to be announced). **11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.0 p.m.,** Topical Talk. **6.10,** Talk on Exemplary Lives by Friedrich Wilhelm Heinz. **6.30,** Announcements. **6.35,** Concert by the Berlin Wireless Orchestra, conducted by Bruno Seidler-Winkler: Grétry Suite (W. Jacobi); Serenade for Small Orchestra, Op. 15 (Fiedler); Comedy Overture, Op. 38 (Busoni); Tetuan from the Moorish Rhapsody (Humperdinck); Spanish Dances: (a) Novillada (Manuela), (b) Spanish Caprice, Del Sacro Monte (de Azagra), (c) Viva lo Cani (Sopeña), (d) El Antequerano (Espet Morera), (e) Spanish Caprice, España mia, (f) Viva Sevilla, (g) Sevillana, (h) Malagueña (Manuela). **8.20,** Concert by the Berlin Cathedral Choir: Unter Die nen Schirmen, Trotz dem alten Drachen, from the motet, Jesu, meine Freude (Bach); Lib dich zufrieden (Bach); Psalm 22 (Mendelssohn); Choral Piece, Denn er hat seinen Engeln befohlen, from Elijah (Mendelssohn); Hebe deine Augen auf—Angel Trio from Elijah (Mendelssohn); Jerusalem (Reinhild Succo). **9.0,** Weather, News, and Sports Notes. **9.30,** Musical Programme (to be announced).

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

(PTT), 986 kc/s, 304 metres; 13 kW.—**6.30 p.m.,** News Bulletin and Exchange Quotations. **6.40,** Talk for Housewives. **6.55,** Lottery Results. **7.0,** Topical Talk. **7.15,** News Bulletin and Weather Forecast. **7.30,** Dramatic Programme.

BRATISLAVA

1,076 kc s, 279 metres; 14 kW.—**4.20 p.m.,** Violin Concerto in A (Mozart), played by Jan Stefka. **5.5,** Light Music on Gramophone Records. **5.15,** A Comedy in One Act (Auerheimer); Czech Translation by Horakova. **5.45,** Slovak Spelling Lesson. **6.0,** See **Prague. 6.10,** See **Moravská-Ostrava. 7.10,** See **Prague. 7.25,** See **Brno. 8.0,** See **Prague. 10.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc s, 253 metres.—12.10 p.m.,** Gramophone Concert of German Songs and Marches. **12.45,** Time, Weather, News and Exchange. **1.5,** 'Cello and Pianoforte Recital on Gramophone Records. **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Market Prices. **2.40,** Programme for Children. **3.10,** Pianoforte Recital by Ludwig Kühn: Prelude and Fugue in F Sharp (Bach); Prelude and Fugue in C Sharp Minor (Bach); Sonata in D, Op. 28 (Beethoven); Three Etudes (Chopin): (a) in C Sharp, Op. 25, No. 7, (b) in A Flat, Op. 25, No. 1, (c) in F, Op. 10, No. 8; Polonaise in A Flat (Chopin). **4.0,** Book Review. **4.20,** Agricultural Prices. **4.25,** Gertrud von le Fort reads from her own Works. **4.55,** Topical Programme. **5.35,** German Music on Gramophone Records: Melody from the Suite in D (Bach); Song from The Seasons (Haydn); German Dances (Mozart); Finale from the Trout Quintet (Schubert); Movement from the Symphony in B Flat (Beethoven); Selection from A German Requiem (Brahms); Overture, The Mastersingers (Wagner). **6.30,** Weather and Market Prices. **6.35,** Talk on Reval. **7.0,** See **Vienna. 9.0,** Time, Weather, News, Sports Notes and Programme Announcements. **9.25,** Review of Political Periodicals. **9.50,** Theatre Talk. **10.5,** Quartet Concert from Hamburg. **11.0** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW. **5.0 p.m.,** Music Review. **5.15,** Talk for Workers. **5.25,** German Transmission: News, Talk, and Agricultural Report. **6.0,** See **Prague. 6.10,** Reading from a French Novel. **6.30,** Concert by the Station Orchestra, conducted by Jan Janota. Soloist: Jas. Kreuck ('Cello): Scherzo from A Midsummer Night's Dream (Mendelssohn); Variations for 'Cello and Orchestra (Tchaikovsky); Bacchanale from Tannhäuser (Wagner); Polovtsian Dances from Prince Igor (Borodin). **7.10,** See **Prague. 7.25,** A Radio Film. **8.0,** See **Prague. 10.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R.; 590 kc/s, 509 metres; 15 kW.—**11 a.m.,** Concert by the Small Station Orchestra, conducted by P. Leemans. **12 Noon,** Journal Parlé. **12.10 p.m.,** Gramophone Concert of Waltzes: Waltzes from (a) The Land of Smiles (Lehár), (b) Arabian Nights (Joh. Strauss); Hofballtänze (Lanner); Waltz from Die Teresina (O. Straus). **12.40,** Concerto (Gershwin). **4.0,** Concert of Opera Music by the Radio Orchestra, conducted by H. Walpot: Overture, La fille de Madame Angot (Lecocq); Ballet Music from Isoline (Messager); Selection from La poupée (Audran); Overture, The Black Domino (Auber). **4.30,** Programme for Children. **5.5,** Literary Review. **5.15,** Reading of Poems by Henri Deligne. **5.30,** Handel Music by the Small Station Orchestra, conducted by P. Leemans: The Occasional Overture (Handel); Prayer, for Violin; Campanella. **5.45,** Recital of Songs (Leemans) by Yvonne Streulens. **6.0,** Debussy Music: Prelude, La damoiselle élue; Danse sacrée and Danse profane, for Pianoforte and Strings. **6.15,** Weekly Review of the Radio Catholic Belgian Society, and Film Review. **6.30,** Talk for Women. **7.0,** Concert of Light Music by the Quatz' Andouilles and the Radio Orchestra. **7.45,** Talk for Ex-Servicemen. **8.0,** Concert by the Symphony Orchestra, conducted by Jean Kumps. Soloist: Mireille Flour (Harp). Bourrée fantasque (Chabrier); Harp and Orchestra: Concert Piece (Pierné); Petite Suite (Ducasse). **8.30,** Harp Recital by Mireille Flour: Prelude and Dance (Büsser); Minuet (Rameau); La volière magique (Fourier); Popular French Song (Grandjean). **8.45,** Concert (contd.). Divertissement on Russian Themes (Rabaud). **9.10,** Request Gramophone Concert. **9.40,** Concerto grosso No. 8 (Corelli). **9.55,** Christus vincit. **10.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 887 kc s, 338.2 metres; 15 kW. Programme in Flemish. **11.0 a.m.,** Gramophone Concert, with Pianoforte Solos by Ida Lowy. Overture, Ruy Blas (Mendelssohn); On Wings of Song (Mendelssohn); Von ewiger Liebe (Brahms); Du bist die Ruh' (Schubert); Ständchen (Schubert); Pianoforte Solos: (a) Capriccio (Mendelssohn), (b) Am Bach (Schumann), (c) Fantasia (Chopin); Der Erlkönig (Schubert); Die Forelle (Schubert); Ständchen (R. Strauss). **12.10 p.m.,** Concert of Light Music by the Small Station Orchestra, conducted by P. Leemans. **4.0,** Concert by the Symphony Orchestra, conducted by J. Kumps: Children's Symphony (Romberg); Pieces from the Album for the Young (Schumann); Children's Symphony (Haydn); Selection from Hansel and Gretel (Humperdinck). **4.45,** Programme for Children. **5.30,** Gramophone Concert of Dances: Ballet Music from Les aventures du roi Pausole (Honegger); Dances from La Vida Breve (Falla); Ballet Music from Chout (Prokofiev); Ballet Suite, Liebeswalzer (Reger); Dance of the Seven Veils, from Salome (R. Strauss); Three Dances from La tragédie de Salomé (Schmitt); Ballet oriental (Poot). **6.15,** Talk: The Flemings in the Walloon Country. **6.30,** Tourist Talk. **7.0,** Concert by the Symphony Orchestra, conducted by J. Kumps. Soloist, Greta De Wieuw (Songs). Norwegian Dances (Grieg); Songs: (a) Frühlingstraum (Schubert), (b) Ballad, Die Uhr (Loewe), (c) Jünges Grün (Schumann); Symphonic Dances (Grieg); In de duinen (Waelput); Kindje, wat ben je toch zacht (Mortelmans); Zoet lief (Wateleb); Rhapsody on Two Flemish Songs (De Boeck). After the Concert, Sarov Monthly Mosaic. **8.15,** Concert by the Radio Orchestra, conducted by Charles Walpot. Soloists: Vervest and Kemma (Accordions): Waltz, Tales from the Vienna Woods (Joh. Strauss); Three Gramophone Records: Waltz, Wienerblut (Joh. Strauss); Accordion Solos: (a) March de cortège (Van Havarberghe), (b) Saxophone Waltz (Wood); Radetzky March (Strauss). **9.0,** Journal Parlé. **9.10,** Variety Music on Gramophone Records. **10.0** (approx.), Close Down.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**4.0 p.m.,** Light Music and Rumanian Music by the Motor Orchestra. In the interval at **5.0,** News and Time Signal. **6.0,** Talk: Rumanian Religious Painting. **6.20,** Literary Talk. **7.0,** Symphony Concert by the Station Orchestra, conducted by C. Nottara. Soloist: M. Nicolesco (Songs). Overture, A Midsummer Night's Dream (Mendelssohn); Symphony in E Flat, No. 39 (Mozart); Final Scene from The Valkyries (Wagner); Petite Suite (Debussy). In the interval at **7.45,** Talk. **8.15** News.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW. Programme also relayed on **840 metres** from **6.30 p.m. to 11.30 p.m.—4.0 p.m.,** Pianoforte Recital by Paul Kiss. **4.80,** Talk. **5.0,** Orchestral Concert. **6.0,** French Lesson. **6.30,** Song Recital in Commemoration of Alois Tarnay. **7.45** News Bulletin. **8.0** (approx.), Cigány Concert from the Hotel Britannia. **9.10,** Weather Report. **9.15** (approx.), Concert by the Hungarian String Trio: String Trio in G, Op. 9, No. 2, for Violin, Viola, and 'Cello (Beethoven); Kleine Tanzsuite (Molnar); Trio for Strings in B flat (Schubert). **10.15,** Dance Music from the Hotel Dunapalota.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by **Kalundborg, 260 kc s, 1,153 metres.—11.0 a.m.,** Town Hall Chimes. **11.2 to 1.0 p.m.,** Concert from the Bellevue Strand hotel. **2.0,** Orchestral Concert, conducted by Launy Grøndahl: Overture, L'épreuve villageoise (Grétry); Waltz, A toi (Waldteufel); Selection from the Music to Youth and Madness (Dupuy); Russian Cradle Song (Grøndahl); Danish Rhapsody (Otto Olsen). Reading of Poems; March, The Spirit of Liberty (Rosey); Overture, La Sirène (Auber); Waltz, Sölvnyrter (Lumbye); Two Icelandic Dances (Jon Leifs); Selection from The Bartered Bride (Smetana); March, Les Banderilleros (Volpatti). **4.0 to 4.30,** Programme for Children. **4.40,** Exchange and Market Prices. **4.50,** Talk: Northern Norway in Literature. **5.20,** German Lesson. **5.50,** Weather and News. **6.15,** Time Signal. **6.20** (from the Aarhus Studio), An Interview in connection with the Radio Journal Det danske Hedeselskab—Three Talks. **6.45,** Talk on the following Operetta. **7.1,** Drei alte Schachteln (Three Old Maids)—Operett (Kollo). **10.0** (approx.), News Bulletin. **10.15,** Dance Music from the Lorry Establishment. In an interval at **11.0,** Town Hall Chimes. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—**6.0 p.m.,** Miscellaneous Items and Announcements. **6.15,** Talk on Old Cracow. **6.30** till Close Down, See **Warsaw. 11.0** (approx.), Close Down.

DANZIG.—See **Heilsburg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11.0 a.m.,** Military Music. **11.30,** News Bulletin. **11.45,** Variety Concert. **5.30 to 7.0,** Programme in English by the I.B.C. C. Danvers-Walker, B. McNabb and E. Lamping announcing. (These times are subject to alteration.) **5.30,** Accordion Solos for Torquay Listeners: Annette (Phillips); Au Revoir (Cuvelier); Marche jeyeuse (Cuvelier); Donauwelle

(Rosas); Flor d'Espagne (Vola); La Tourterelle (Damaré); Rosa (Vola); Restless Fingers (Cuvelier). **6.0,** Military Band Concert for Plymouth Listeners; Overture, Zampa (Herold); In a Monastery Garden (Ketelbey); Nibelungen March (Wagner); Selection from The Three Musketeers (Friml); Cradle Song (Brahms); In a Persian Market (Ketelbey); Squirrel Dance (Elliott Smith); Selection from The Vagabond King (Friml). **6.30,** Song Recital for Devonport Listeners: Two Songs (Woodforde Finden): (a) Temple Bells, (b) Less than the Dust. I pitch my Lonely Caravan at Night; The Night you sang Sweet Genevieve; Octet, Hindu Song (Rimsky-Korsakov); Two Songs (Woodforde Finden): (a) Kashmiri Love Song, (b) Till I wake (Woodforde Finden); Somebody, Somewhere, Someday; We live and we love; Octet, Minuet in G (Beethoven). **7.0,** Local News and Popular Music on Gramophone Records. **7.30,** Radio Gazette. **8.0,** The Listeners' Quarter-of-an-Hour. **8.15,** Talk. **8.30,** Concert relayed from **Le Havre.** **10.0** till **Close Down,** Programme in English by the I.B.C. (These times are subject to alteration.) **10.0,** Light Music: I'm all dressed up with a Broken Heart; A little less of the Moonlight; Let a little pleasure interfere with Business; I'll putcha pitcha in the Paper; At your command; Blues in my Heart; My baby said Yes Yes; Dance Hall Doll; Oh it looks like rain; I'm getting superstitious about you; Little Girl; Guilty; You can't stop me from loving you; Time alone will tell; Look in the Looking Glass. **11.0,** Light Orchestral Concert: Stephanie Gavotte (Czibulka); Ideale (Tosti); Violin Solo: Spanish Dance (Falla); Wedding of the Winds (Hall); Serenade (Heykens); Violin Solo: Ballet Music from Rosamund (Schubert); Vienna, City of my Dreams (arr. Reeve). **11.30,** The Studio Chorus in Negro Spirituals: I got a robe; Deep River; Couldn't hear nobody pray; Go down Moses; Levee Sing; Swing low sweet Chariot; Little David play yo' Harp; Ah ain't gwine study war no more. **12 midnight,** Variety Music: I'm walking in the Sun; Paradise Alley; Laughing Sam the Railwayman; In Sunny Seville; Overnight; Taking the Cake. **12.30 a.m. (Wednesday),** Songs: Blue Pacific Moonlight; Fall in love with me; Now you're in my Arms. Orchestra: Raspberries; One Night Alone with You; Out of nowhere; You're just a lover. Orchestra: You'll die if you worry. **1.0,** Hawaiian Band Concert: Serenata (Toselli); Land of the Might have been (Adeler); Somehow (Hackforth); Sleepy Head (Hackforth); Go home and tell your Mother (McHugh); My Bluebird was caught in the rain (Creamer); With my Guitar and you; Somewhere in Old Wyoming (Lesser). **1.30 a.m. (Wednesday),** Songs and Xylophone Solos: Xylophone Solo, Schön Rosmarin. Songs: (a) There's danger in your Eyes, Cherie, (b) I remember you from Somewhere, (c) With you; Xylophone Solo, Parade of the Minutes; Songs: (a) My Song of the Nile, (b) West Wind, (c) Go to Bed. **2.0,** Variety Music; Listen to the German Band; Underneath the Arches; I do like to see a Game of Football; The Clouds will soon roll by; Lullaby of the Leaves; I love a Parade; Paradise; Ooh, that Kiss; To-day's the Day; Masquerade; Auf Wiedersehen, my Dear; Snuggled on your Shoulder; Good Evening; Just another Dream of you. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.) Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW. Relayed by **Cassel. 1,220 kc/s, 245.9 metres.**—**6.15 p.m.,** Time, Announcements, Weather and Economic Notes. **6.20,** Art and Science Notes. **6.30,** Concert by the Station Orchestra, conducted by Reinhold Merten: Overture, Die Fledermaus (Joh. Strauss); Waltz, Juristenballtänze (Strauss); Selection from Der arme Jonathan (Millöcker); Spanish March (Strauss); Waltz, Lebenspulse (Lanner); Selection from Der Obersteiger (Zeller). **7.40,** See **Stuttgart.** In the Interval at **9.0,** Time, News, Weather and Sports Notes. **11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBURG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**5.20 p.m.,** Cabaret music on Gramophone Records. **5.55,** Exchange and Market Prices. **6.0,** Agricultural Talk. **6.25, Weather. 6.30** (from **Hanover**), Readings (Detmold). **7.0,** See **Vienna. 8.0,** Concert of Dialect Songs by a Male Choir and Soloists, relayed from the Convent Garden. **9.0,** Time, Weather, News, Sports, and Police Notes. **9.20,** Topical Talk. **9.30,** Concert by the Berlin String Quartet: Quartet No. 1 in D (Dittersdorf); Quartet in F, Op. 96 (Dvorak). **10.20,** Ice Report. **10.25,** Gramophone Concert of Light Music.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.**—**12.5 p.m.,** Gramophone Concert. Chopin Potpourri, Dutch March; Two Folk Songs: (a) Ach wie ist's möglich dann, (b) Muss i denn zum Städt'le hinaus; Duet from Cavalleria rusticana (Mascagni); Bass Solos: (a) Aria from Ernani (Verdi), (b) Aria from La Favorita (Donizetti); Ballet Music from Aida (Verdi); Tenor Solos (Weinberger): (a) Wozu die Sehnsucht, die Schwärmerei, (b) Du wärst für mich die Frau gewesen; Wiener Volksmusik (Komzak); Ein Traum des Glücks (Sturm); Selection from One Hour with You (Rollins-Whiting). In the interval at **12.20,** News. **1.30,** Programme arranged by the Post Office, with Gramophone Records. **2.0,** Exchange Quotations. **2.30,** Musical Improvisations for Children. **3.0,** Mahnung an die Jugend, sich der Musik zu befleissigen—Cantata (Paul Hindemith), on Gramophone Records. **3.30,** See **Leipzig. 4.35** (from **Danzig**), Dialogue: Walter Grzan, a War-blinded Danzig Officer, wins the Gold Sports Badge. **4.50,** Talk: Popular Art in East and West Prussia. **5.15,** Market Prices. **5.20,** Ice Report. **5.30,** Talk on Handicrafts: Upholstering. **5.55,** Shorthand Lesson. **6.20,** An Evening with the Recruits—Military Band Concert from Rastenburg. **7.0,** Weather and News. **7.10** (from **Danzig**), Operetta Concert, conducted by Otto Selberg. **9.10,** News Bulletin.

HILVERSUM

(Announced **Huizen**). **1,013 kc/s, 296.1 metres;** 20 kW. (7 kW. **up to 4.40 p.m.**).—**11.55 a.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). **11.55,** Concert by the K.R.O. Sextet. **1.25 p.m. to 1.40 p.m.,** Interval. **1.40,** Topical Talk. **2.15,** Talk for Women. **3.10,** Dressmaking Lesson. **3.40,** Millinery Lesson. **4.10,** Concert of Light Music by the K.R.O. Boys, conducted by P. Lustenhouwer. Soloist: J. Mossel (Songs). **6.10,** Esperanto Lesson **6.30,** Popular Music on Gramophone Records. **6.40,** Talk on Karl Marx. **7.0,** Light Music on Gramophone Records. **7.10,** Police Notes. **7.25,** Talk. **7.40,** Sacred Music relayed from the Cathedral at Roermond: Domine non sum dignus (Victoria); Meditation on the Passion; Ave Regina; Selection from Stabat Mater (Franssen); Tantum Ergo (Nieland); Funeral March (Mendelssohn); Prière à Notre Dame (Boëllmann). **9.10,** News Bulletin. **9.15,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen. Soloist: Mme. Maria von Basilides (Songs). Overture, Alcestis (Gluck); Selection from Titus (Mozart); Light Music on Gramophone Records: Symphony in E Flat, No. 39 (Mozart). **10.10,** News Bulletin. **10.15,** Concert (contd.). Six Songs (Schubert): (a) Anacreons Grab, (b) Gesegnet sei, (c) In der Schatten meiner Locken, (d) Die junge Nonne, (e) Das Lied im Grünen, (f) Die Forelle; Overture, La Dame blanche (Boieldieu); Waltz, Roses from the South (Strauss); Am Hofe Rossinis (Urbach). **11.10,** Popular Music on Gramophone Records. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 160 kc/s, 1,875 metres; 8.5 kW.**—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.41 a.m.,** Concert by the Wireless Orchestra, conducted by Nico Treep. **1.55 to 2.10 p.m.,** Interval. **2.10,** Popular Music on Gramophone Records. **2.40,** Dressmaking Lesson. **3.40,** Pianoforte Recital by Julia Noach. **4.10,** Concert by a Children's Choir, conducted by Jacob Hamel. **4.40,** Programme for Children. **5.10,** Talk (arranged by the Liberal Protestant Radio Society). **5.40,** Concert by the Wireless Orchestra, conducted by Nico Treep. March, Leicht zu Fuss (Latann); Overture, Berlin, wie es weint und lacht (Conradi); In the Harbour of Port Said (Armandola); Selection from The Dollar Princess (Fall); Waltz, Over the Waves (Rosas-Pachernegg); Selection from Fedora (Giordano); In the Temple of the Bells (Yoshitomo); Manuela del Rio (Lucchesi). **6.40,** Pianoforte Duets by Ethel Bartlett and Rae Robertson. Variation on a Theme by Haydn (Brahms); Si oiseau j'étais (Henselt); Rondo (Chopin). **7.10,** English Lesson. **7.40,** Time and News. **7.45,** Russian Music. **9.0,** The Second Act of Justice—Play (Galsworthy), arranged for Radio by Kommer Kleijn. **9.40,** Concert of Light Music by Kovacs Lajos and his Orchestra. Soloist: Bob Scholte (Songs). **10.40,** News. **10.50,** Popular Music on Gramophone Records. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

NICE, 1,202, kc/s, 249.6 metres; 0.8 kW.—**9.30 to 10.30 p.m.,** Programme in English by the I.B.C.: H. K. Hitchcock announcing.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**6.15 p.m.,** Announcements and Gramophone Records. **6.25,** Sports Notes. **6.30,** See **Warsaw. 10.0,** Dance Music from the Café Monopol.

KAUNAS

155 kc/s, 1,835 metres; 7 kW.—**6.30 p.m.,** Variety Concert. **7.40,** Talk: Pearls and their Origin. **8.0,** Popular Concert. **8.30,** Talk. **8.50,** Evening Concert. **9.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by **Helsinki, 815 kc/s, 368.1 metres.**—**4.0 p.m.,** Concert by the Station Orchestra, conducted by Erkki Linko: Overture, Die beiden Husaren (Doppler); Waltz, A Day in Sevilla (Waldteufel); Norwegian Song for Strings (Svendsen); Selection from Frederica (Lehár); 'Cello Solo: Serenade from Les Millions d'Arlequin (Drigo); Czardas (Michiels). **5.15,** Talk. **5.40,** Violin Recital by Olavi Vänttinen. **6.20,** Talk. **6.25,** Recitations. **6.45,** Concert by the Turku Municipal Orchestra, relayed from **Turku, 1,220 kc/s, 245.9 metres:** Conductor: Tauno Hannikainen. **7.45,** News in Finnish. **8.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert of Opera and Operetta Music by the Station Orchestra, conducted by Külm. Overture, Das Nachtlager in Granada (Kreutzer); Cigány Dance from The Huguenots (Meyerbeer); Ballet Music from Macbeth (Verdi); Will o' the Wisps' Dance and Sylphs' Dance from The Damnation of Faust (Berlioz); Overture, The Daughter of the Regiment (Donizetti); Scenes from Othello (Verdi); Ballet Music from Tatjana (Lehár); Dream Waltz from Der Felderdiger (Millöcker); Gallop from Die Fledermaus (Joh. Strauss). In the interval at **1.0 p.m.,** News. **1.30,** Sponsored Programme with Gramophone Records. **2.30,** Exchange and Time Signal. **2.50,** Programme of Fairy Tales for Children. **3.20,** Review of Books. **3.30,** Talk: Monte Carlo without the Glamour. **4.0,** Concert of Operetta Music conducted by Wolf. Soloist: Margarethe Palt (Mezzo-Soprano). Overture, Rosamund (Schubert); Marienwalzer (Lanner); Spring Suite (Nevin); Songs; Music to Pole Pappenspäler (Stierlin); Ballet Music from Die Puppenfee (Bayer). **5.15,** Italian Lesson. **5.45,** Weather, Time, Exchange, and Sports Notes. **5.55,** Agricultural Talk. **6.15,** Talk: The Four Hundred and Fiftieth Anniversary of the Birth of Raphael. **6.35,** Talk: Tendencies in Modern Economics. **6.55,** First General News. **7.0,** See **Vienna. 9.5,** News, Sports Notes, and Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by **Dresden, 941 kc/s, 319 metres.**—**11.0 a.m.,** Wind Instrument Concert on Gramophone Records. **12 Noon,** News, Weather and Time. **12.15 p.m.,** Gramophone Concert. Overture, Das Liebesverbot (Wagner); Songs (Liszt): (a) Es muss ein Wunderbares sein, (b) Im Rhein, im schönen Strome; Polonaise No. 2 (Liszt); Aria from The Barber of Bagdad (Cornelius); Overture, Witches' Ride and Gingerbread Waltz from Hansel and Gretel (Humperdinck); Am Rhein (Humperdinck). After the Concert, Exchange Quotations. **1.0,** Advice for the Unemployed. **2.35,** Exchange and Market Prices. **3.0,** Talk: Animals. **3.30,** Concert by the Station Orchestra, conducted by Willy Steffen. Concert Overture, Oberon (Weber); Minuet in F (Habert); Selection from Don Juan (Gluck); Hungarian Divertimento in B Flat, Op. 54 (Schubert). **4.30,** Weather and Time. **4.50,** Exchange Quotations. **5.25,** French Lesson. **5.50,** Introduction to the Gewandhaus Concert of the 30th March. **6.0,** Programme to be announced. **6.10,** Artists four the World—Radio Sequence from Writings of Albrecht Dürer, Ludwig Richter, G. Carus, Paul Gauguin and Others (Wilfred Göpel). **7.0,** See **Vienna. 9.5,** News Bulletin. **9.20** (approx.)), Orchestral Concert, conducted by Hans Jessen. **10.30** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.30 p.m.,** Talk: Heroes of To-day. **7.0,** Talk on Music. **7.30,** Concert of Chamber Music. **8.30,** Quintet Concert. **9.0,** Time and News. **9.5** (approx.), Concert of Light Music.

LWOW

788 kc/s, 381 metres; 16 kW.—**6.0 p.m.,** Technical Correspondence. **6.15,** Miscellaneous Items. **6.30,** See **Warsaw. 9.25,** Relay of Foreign Stations. **9.55,** See **Warsaw. 10.30** (approx.), Close Down.

LYONS

LA DOUA (PTT), 644 kc/s, 465.8 metres; 1.5 kW.—**6.30 p.m.,** Radio Gazette for Lyons and the South-East. **7.30,** Dramatic Programme, followed by News Bulletin.

MADRID

ARANJUEZ (EAQ); 9,860 kc/s, 30.43 metres; 20 kW.—**10.30 p.m.,** Popular Concert. **10.45,** Radio Chronicle. **11.0,** Popular Concert (contd.). **11.30,** Talk. **11.40,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations and Request Gramophone Concert. **7.30,** Talk by Joaquin España Cantos, followed by Request Gramophone Records (contd.). **8.15,** News Bulletin and Political Review. **8.30 to 9.0,** Interval. **9.0,** Linguaphone English Lesson. **9.30,** Chimes, Time Signal, Political Review, and Lucia di Lammermoor—Opera (Donizetti) on Gramophone Records. **11.45,** News Bulletin. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by J. Plichta. **4.10,** See **Prague. 4.50,** Popular Music on Gramophone Records. **5.0,** Talk. **5.15,** See **Prague. 5.25,** See **Brno. 6.0,** See **Prague. 6.10,** Concert of Light Music by the Station Orchestra. **7.10,** See **Prague. 7.25,** See **Brno. 8.0,** See **Prague. 10.0** (approx.), Close Down.

MOSCOW

230 kc/s, 1,304 metres; 100 kW.—**4.30 p.m.,** Concert of Classical Music. **8.0,** Talk in French: Miners in the Soviet Union.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**4.0 p.m.,** Concert by the Willy Ehrmann Orchestra: Overture, Banditenstreiche (Suppé); Waltz, Lotusblumen (Ohlsen); Walter's Prize Song from The Mastersingers (Wagner); Selection from The Bird Fancier (Zeller); Waltz Intermezzo, Amorettenreigen (Fucik); Two Military Marches; March, Alpenlieder (Gruber.) **5.15,** Legal Talk. **5.35,** Talk on Raphael. **5.55,** Time, Weather and Agricultural Notes. **6.5,** Talk on Contemporary German History. **6.25,** Concert by the Radio Orchestra, conducted by Karl List. Overture, Frau Aventiure (Noetzel); Potpourri, Strausfedern (Morena); Japanese Romance (Moret); Waltz, Dorfkinder (Kalman); Spring Serenade (Lacombe); Alsatian Peasant Dances (Merkling); Waltz, Amorettentänze (Gungl); Selection from Grigri (Lincke); March from Fatinitza (Suppé). **7.45,** Reading in Palatinate Dialect. **8.10,** Recital of Sixteenth Century Music for the Double-stringed Lute. **8.35,** Reading of Two Ballads (Schiller). **8.50** (from **Nürnberg**), Recital of Pianoforte Duets by Maria and Fritz Binder: Romantic Dance Pictures, Op. 10 (Raphael); Six Short Dance Pieces, Op. 41 (Rowley). **9.20,** Time, Weather, News and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**4.0 p.m.,** Concert by the Station Orchestra, conducted by Hugo Kramme: Overture, The Thieving Magpie (Rossini); Schubert Potpourri (Urbach); Elegy (Mowinckel, Jr.); Når brura gjekt gjennom porthuset ved kjyrkja (Johansen); Potpourri, Telefunken (Morena); Russian March (Ganne). **5.0,** Programme for Housewives. **5.45,** Recitations. **6.0,** Announcements, Weather and News. **6.30,** Discussion between a Lawyer, a Bishop and a Prisoner: The Problem of Prisons. **7.0,** Le Belle Hélène—Operetta in Three Acts (Offenbach), relayed from the National Theatre. In the intervals at **8.5,** Topical Talk, and at **9.5,** Weather and News. **9.55** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—Transmits at intervals from **7.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes, and Giornale Radio. **7.20,** Popular Music on Gramophone Records. **7.30** (in an interval), Time Signal and Announcements. **7.45,** Popular Concert, conducted by M. Fortunato Russo. In the intervals: Talk and Art Notes. **9.0,** Light Music on Gramophone Records. **9.55,** News Bulletin.

PARIS

EIFFEL TOWER (FLE), 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Pre-

MARCH 28th TUESDAY continued

liminary and 6-dot Signals). 5.45 p.m., Talk on the Theatre. 6.0, Le Journal Parlé. 7.20, Weather Report. 7.30, Dr. Knock—Comedy in Three Acts (Jules Romains).

PARIS

POSTE PARISIEN, 914, kc/s, 328.2 metres; 60 kW.—5.45 p.m., Le Journal Parlé. 6.0, Popular Music on Gramophone Records. 7.0, Film Review. 7.5, Talk on the Circus. 7.30, Concert of Music by Charles Widor and Henri Rabaud. 9.30, News Bulletin.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—5.45 a.m., Physical Culture. 6.30, Weather and Physical Culture (contd.). 6.45, Gramophone Records. 7.0, Press Review and Weather. 11.0, Concert by the Krettly Orchestra: Overture, La Part du Diable (Auber); Selection from Le Postillon de Longjumeau (Adam); Prelude, Serenade, March and Gipsy Dance from The Fair Maid of Perth (Bizet); Entr'acte from The Pet Dove (Gounod); Selection from Les Folies-amoureuses (Pessard); Selection from Tosca (Puccini); Two Songs from Boris Godunov (Mussorgsky), on Gramophone Records; Two Arias from Figaro (Mozart), on Gramophone Records; Dance (Turina); Polonaise (Brzezinski); Norwegian Dances (Grieg); Two Waltzes (Dvorák); Ballet Suite (Infante); In the intervals at 12 Noon, Exchange and Announcements, News and Weather; and at 12.30 p.m., Exchange. 1.0, Exchange. 2.45, Exchange and Market Prices. 3.30, Elementary English Lesson. 5.10, Agricultural Talk. 5.30, Advanced English Lesson. 5.50, Theatre Review. 6.5, Talk on Art: The Bourdelle Exhibition. 6.20, Concert by the Krettly Orchestra: Sortilège de Printemps (Berlandier); Air de danse (Penau); Nocturne (Paray); Gavotte (Steck); Suite brève (Busser). 6.45, Commercial Prices, News and Review of the British Press. 7.0, Concert. 7.30, News and Weather. 7.40, Review by Miguel Zamaçois. 7.45, I Pagliacci—Opera (Leoncavallo) on Gramophone Records, by the Cast of the Scala Milan. In the interval at 8.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC, KDKA, 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—9.0 p.m., Work-a-day Thoughts. 9.5, Business News. 9.15, Selma Brandt (Pianist). 9.30, Weather Report. 9.31, Market Reports. 9.45, Johnny Muskrat. 9.50, David Lawrence Dispatch. 9.58, Programme Announcements. 10.0, Programme to be announced. 10.15, Dick Daring, from **New York.** 10.30, The Singing Lady, from **New York.** 10.45, Little Orphan Annie. 11.0, Booth Tarkington's Mandie and Cousin Bill, from **New York.** 11.15, Time Signal. 11.16, Weather Report. 11.17, Teaberry Sport Review. 11.22, Press News Recler. 11.27, Strange Facts. 11.29, Temperature Report—Philadelphia Company. 11.30, KDKA Orchestra. 11.45 to 1.45 a.m. (**Wednesday**), **New York** Relay. 11.45, To-day's News by Lowell Thomas. 12 Midnight, Pepsodent Amos 'n' Andy. 12.15 a.m., National Advisory Council on Radio in Education—The Lobby. 12.45, The Townsend Murder Mystery. 1.0, Eno Crime Club. 1.30, Time Signal and Adventures in Health. 1.45, Programme to be Announced. 2.0 to 4.0, **New York** Relay. 2.0, Household Musical Memories. 2.30, Willard Robison's Deep River Orchestra. 3.0, Baltimore Symphony Orchestra. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report—Philadelphia Company. 4.12, Weather. 4.15, Press Last Minute News Flashes. 4.20, Smith Ballew and his Orchestra. 4.58, KDKA Artist Bulletin. 5.0, Cotton Club Orchestra, from **New York.** 5.30, Time Signal and Good night.

PORSGRUNO.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—3.10 p.m., See **Moravská-Ostrava.** 4.10, Talk on Economics. 4.20, Czech Lesson for Germans and German Lesson for Czechs. 4.50, Variety Music on Gramophone Records. 5.5, Agricultural Report. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission: Spring in Songs—Recital by Erna Fischer. 6.0, Chimes. 6.1, News. 6.10, See **Moravská-Ostrava.** 7.10, Talk: The Different Races inhabiting Czechoslovakia. 7.25, See **Brno.** 8.0, Time Signal. 8.1, Concert by the Los Aguilar Lute Quartet. Prelude and Sarabande (Croft-Aguilar); Minuet (Mozart); Sevilla (Albeniz-Aguilar); Eight Pieces (Stravinsky): (a) March, (b) Waltz, (c) Polka, (d) Andante, (e) España, (f) Balalaika, (g) Napolitana, (h) Gallop; Persian Song (Schelling); Merry March (Halfter); From Andalusia (Xin); Fire Dance (Falla). 9.0, Time Signal. 9.1, News Bulletin. 9.15, Concert by the Ondricek Quartet. Ten Songs with Pianoforte Accompaniment for Voice, with accompaniment for Violin, Viola, 'Cello, Flute, and Harp (Tcherepnin); Psyche (Falla); String Quartet in C (Zich). 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW; **LAUSANNE, 442 kc/s, 680 metres;** and **GENEVA, 395 kc/s, 760 metres.**—5.0 p.m. (from **Lausanne**), Medical Talk. 5.30 (from **Geneva**), English Lesson. 6.0 (from **Geneva**), Weather Forecast, News Bulletin and Announcements. 6.20 (from **Geneva**), Answers to Correspondence. 6.30 (from **Geneva**), Concert of New Gramophone Records. 7.0 (from **Geneva**), Concert of Folk Music by the Moser Orchestra and the Lausanne Yodelling Club. 7.40 (from **Geneva**), Concert of Light Music by the Station Orchestra, conducted by R. Echenard. In the interval: Songs from Operettas by Mme. Olivet-Decompoix. 9.0, News Bulletin and Weather Forecast. 9.10 (from **Geneva**), Talk: The Work of the League of Nations. 9.30 (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—8.30 p.m., Weather Report. 8.40, Musical Programme and Announcements. 9.0, Chimes. 9.2, News Bulletin. 9.30, Reading. 10.0, Pianoforte Recital by Emil Thoroddsen. 10.15, Recitation. 10.35, Trio (Haydn) on Gramophone Records.

RIGA

572 kc/s, 525 metres; 15 kW.—6.5 p.m., Concert of Opera Music. 7.0, News. 7.20, Pianoforte Recital. 7.50, Popular Music. 8.0, Weather and News. 8.30, Light Music. 9.30 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.** 12 Noon, Time and Announcements. 12.2 to 1.15 p.m., Concert of Light Music from **Turin.** In the interval from 12.30 to 12.45, Giornale Radio and Exchange. 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30 to 5.15, Orchestral Concert. 6.0 (**Naples**), Shipping and Sports Notes. 6.10, Lesson in Morse. 6.20, Giornale Radio, Agricultural and Dopolavoro Notes. 7.0, Time and Announcements. 7.2, Talk: The Heavens in April. 7.15, Light Music on Gramophone Records. 7.30, Sports Notes and Tourist Report. 7.45 (approx.), Programme to be announced. In the intervals: Talk and News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** and by **W2XAD** (See Short-Wave List).—12 Midnight, General Electric Programme. 12.15 a.m. (**Wednesday**), Wheatena Ville Sketch, from **New York,** followed by Stock Reports. 12.30 to 3.0 a.m. (**Wednesday**), **New York** Relay. 12.30 Soloist. 12.45, The Goldbergs. 1.0, Black-stone Plantation. 1.30, Wayne King's Orchestra. 2.0, Ben Bernie's Blue Ribbon Orchestra. 2.30, Ed Wynn and the Fire Chief Band. 3.0, Lucky Strike Hour and Programme Resume.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres.**—11.28 a.m., Time Signal from the Neuchâtel Observatory. 11.30, Weather and News. 11.40 (from **Basle**), Light Music on Gramophone Records. 12.35 p.m., Weather and Exchange. 12.40 to 2.30, No Transmission. 2.30 (from **Berne**), Cinema Organ Recital on Gramophone Records. 3.0 (from **Berne**), Popular Film Stars sing on Gramophone Records. 3.30 (from **Berne**), Light Music on Gramophone Records. 4.30, Weather Report. 4.32 to 5.30, No Transmission. 5.30 (from **Berne**), Talk: The Psychology of Youthful Prodigies. 6.0, Time and Weather Report. 6.2 (from **Berne**), Educational Talk. 6.10 (from **Berne**), Concert of Songs and String Quartet Music. 6.50 (from **Berne**), Dr. Chlupf Dialect Comedy in Three Acts (Otto von Greyerz). 8.40, Weather and News. 8.50 (from **Berne**), Dance Music. 9.15 (from **Berne**), An Excursion with the Microphone. 9.25 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

(SASA), 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 212.5 kc/s, 1,354.4 metres; Östersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—4.5 p.m., Programme for Children. 4.45, Popular Music on Gramophone Records. 5.45, Elementary French Lesson. 6.15, Weather and News. 6.30, Talk. 7.0, Military Band Concert, conducted by Nils Wieslander, relayed from **Boras, 1,450 kc/s, 207 metres.** 7.55, Literary Review. 8.25, Prelude, Air and Finale for Pianoforte (Franck), by Herbert Westrell. 8.45, Weather and News. 9.0, Organ and Song Recital by H. schindler and Joel Berglund: Concerto in B Flat, Op. 4, No. 2 for Organ (Handel); Songs: (a) Mein gläubiges Herze (Bach), (b) Arioso (Händel); Prelude and Fugue in F for Organ (Buxtehude); Three Choral Overtures for Organ from Op. 122 (Brahms); Songs from Ernste Gesänge (Brahms); Fantasia from the Sonata in F Sharp Minor, Op. 33 for Organ (Beger). 10.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.30 a.m., Light Music on Gramophone Records. 11.0, Orchestral Concert, conducted by Maurice de Villers: Overture, Armide (Gluck); Dance Airs from Hippolyte et Aricie (Rameau); Four Airs from Manfred (Schumann). 11.45, News. 12 Noon, Time and Exchange. 12.5 p.m., Orchestral Concert (contd.): Airs (Guiraud): (a) Selection from Piccolino, (b) Persian Dance, (c) Scene and Waltz from Gretna Green; Carnival. 1.0 to 3.45, Interval. 3.45, Talk in French on Toulouse. 4.0, Orchestral Concert, conducted by Roskam: Liberty March (Kostal; Waltz, Feuilleton (Fucik); Humoresque (Bayer); Overture, The Story of the Princess (Kostal); Selection from Romeo and Juliet (Gounod); A bâtons rompus (Gillet); Was Blumen träumen (Translateur); Selection from The Geisha (Jones). 5.0, Historical Talk in French. 5.15, Topical Talk in French. 5.30, Concert by the Municipal Theatre Orchestra, relayed from **Metz.** Conductor: H. Ehrmann. Overture, Le pré aux clercs (Hérold); Selection from Il Trovatore (Verdi); Rigandon des petits pages (Delanney); Gracieux page (Delanney); Selection from: (a) Le petit duc (Lecocq), (b) La princesse de Trébizonde (Offenbach), (c) Les Saltimbanques (Ganne). 6.30, Time and News. 6.45, Dance Music on Gramophone Records. 7.20, Lottery Results. 7.30, Dramatic Programme, relayed from **Paris.** 9.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by **Freiburg, 527 kc/s, 570 metres.**—12.30 p.m. (from **Freiburg**), Plitzner Song Recital by August von Manoff (Baritone): Zweifelnde Liebe; Ich will mich im grünen Wald ergehen; Zügvogel; Die Bäume wurden geh; Wasserfahrt; Frieden; Der Gärtner; Willkommen und Abschied; Säerspruch; Less scharren deiner Rosse Huf. 1.0, Musical Programme arranged by the Post Office. 1.30 to 2.0, Advanced English Lesson. 3.0, Talk on Flowers. 3.30, Talk for Women: Women in the Hotel Industry. 4.0 (from **Freiburg**), Concert by the Freiburg Concert Orchestra, conducted by Richard Fried. Soloist: Hugo Stoffel (Violin). Overture, L'isola disabitata (Haydn); Concerto for Violin and Orchestra (Hermann Goetz); Fantasia on Haydn's Music (Urbach); Overture, Turandot (Lachner); Concert Overture, Nachklänge aus Ossian (Gade); Violin Solo: Romance (Svendsen); Swedish March (Südermann). 5.15, Time, Weather and Agricultural Notes. 5.25, Actors and Critics—a Dialogue between Karl Köstlin and Herbert Hiering. 5.50, Talk by Barbara Bonin: My First Flight. 6.15, Time and News. 6.30 (from **Freiburg**), Variety Programme. 7.0, Authors whom we should Know—A Sequence of Dialogues on Authors killed in Action (Georg von der Vring). 7.40, Concert by the Stuttgart Philharmonic Orchestra, conducted by Gustav Görlich. Soloist: Gerda Hanst (Soprano). Overture and Two Ariettas from Oberon (Weber); Three Pieces from the Music to Björnson's Signid Jorsalfar (Grieg); Overture, Der Waldmeister (Joh. Strauss); Recitative and Aria from Die schöne Galathée (Suppé); Waltz, Mon rêve (Waldteufel). 9.0, Time, News, Weather and Programme Announcements. 9.50, Dance Music with Vocal Refrains. 11.0 (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—5.15 p.m., Opéra-Comique Songs. 5.30, Orchestral Selection from The Countess Maritza (Kálmán). 5.45, Popular Songs. 6.0, Military Music. 6.15, News, Racing Results and Market Prices. 6.25, Local News. 6.30, Accordion Solos. 6.45, Songs from Sound Films. 7.0, Orchestral Music. 7.15, Songs from Operettas. 7.30, Orchestral Concert: Waltz (Thome); Allegro and Minuet from the Toy Symphony (Haydn); Two Movements in Symphonic Form (Franck); Im Walzerrausch (Lincke); Dance of the Sylphs from The Damnation of Faust (Berlioz); Overture, Idomeneo (Mozart). 8.0, First Concert by the Toulouse Symphony Orchestra, conducted by M. Tartanac: Coronation March from The Prophet (Meyerbeer); Overture, Morning, Noon and Night (Suppé); Contemplation (Mazellier); In the Steppes of Central Asia (Borodin); Spanish Dance from La vida breve (Falla); Cortège de Bacchus from Sylvia (Delibes). In the interval, Popular Songs. 9.15, North African News. 9.30, Concert for Listeners in Morocco. 10.30 to 11.0, Programme in English by the I.B.C. W. Brown-Constable announcing. Chorus from Congress Dances (Heymann); Selection from Iolanthe (Sullivan); The Skaters' Waltz (Waldteufel); The Maid of the Mountains (Fraser-Simpson); A Waltz Dream (O. Straus); Ol' Man River from Show Boat (Kern). 10.57, I.B.C. Goodnight Melody. 11.0, Weather and Announcements. 11.5, Argentine Music. 11.15, Organ Solos. 11.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—4.50 p.m. till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—4.50 to 5.15, Dance Music from the Savoia. 5.35, Giornale Radio, Agricultural and Dopolavoro Notes. 6.5, Giornale Radio. 6.30, Time, Announcements, Report of the Royal Geographical Society, and Gramophone Records of Variety Music. 7.0, Giornale Radio, Weather, and Gramophone Records (contd.). 7.45, Talk. 8.0, Variety Programme. 9.0, Talk. 9.15, Dance Music. 10.0, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and **5,969 kc/s, 50.26 metres (Evening);** 10 kW. —10.0 to 10.15 a.m., Religious Information in English. 7.0 to 7.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—3.55 p.m., Concert of Popular Music by Karl Hawranek and his Band. 5.5, Agricultural Talk. 5.30, Italian Lesson. 5.55, Talk: The Significance of History. 6.20, Time, Weather, and Announcements. 6.30, Reading: Die Diligence von Bordeaux (Oscar A. H. Schmitz). 7.0, Strauss Concert by Josef Holzer and his Orchestra. Soloist, Maria Gerhart (Soprano). Joh. Strauss: (a) Festmarsch, (b) Overture, The Gipsy Baron, (c) Song from Karneval in Rom, (d) French Polka, L'Enfantillage, (e) Waltz, Wo die Zitronen blüh'n (arranged for Coloratura Soprano by Lothar Riedinger), (f) Prelude to Jabuka; Waltz Paraphrase for Pianoforte and Orchestra on Strauss Themes (Otto Schulhof); Johann Strauss: (a) Waltz Song from Indigo, (b) Overture, Prince Methuselah, (c) Waltz, Frühlingsstimmen; Josef Strauss: Ein Rätsel ist das Frauenherz; Johann Strauss: (a) Song from Jabuka, (b) Czardas from Cagliostro; Josef Strauss: Waltz, Sphärenklänge; Johann Strauss: (a) New Pizzicato Polka, (b) Song from The Queen's Kerchief; Waltz Paraphrase for Pianoforte and Orchestra on Motives by Josef Strauss (Schulhof); Johann Strauss: Quick Polka, Tritsch-Tratsch. 9.0, News, Weather, and Announcements. 9.15, Dance Music by Jean Litwin's Syncopators and Los Pamperos Tango Band, relayed from the Café de Paris. Soloist, Bertram Alfonso (Songs).

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—10.57 a.m., Time Signal and Fanfare from the Tower of St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Light Music on Gramophone Records. 12.20 p.m., Weather Forecast. 12.25 to 2.10, Interval. 2.10, Announcements. 2.15, Economic Notes. 2.25, Aviation Report and Anti-Gas Drill. 2.30, Announcements. 2.35, Book Review. 2.50, Light Music on Gramophone Records. 3.20, Talk on History. 3.40, Talk: The Economic Crisis in Ancient Rome. 4.0, Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by W. Berdjajew: Overture, Rienzi (Wagner); Symphony No. (Beethoven). In the interval, Announcements. 4.55, Programme Announcements. 5.0, Talk on Polish Literature—Zoromski. 5.20, News. 5.25, Light Music. 6.0, Miscellaneous Items. 6.20, Agricultural Notes. 6.30, Talk on Chopin. 6.45, Radio Journal. 7.0, Concert by the Station Orchestra, conducted by Oziminski. Soloist: I. Cywinska (Soprano). Polonaise (Oginski-Lefeld). Overture, Raymond (Thomas); Prelude and Berceuse (Järnefeldt); Slav Dance in G (Dvorák); Mountaineers' Dances from Halka (Moniuszko); Songs: (a) Traum durch die Dämmerung (R. Strauss), (b) Song (Brahms), (c) At my Window (Rachmanjnov), (d) Song (Tchaikovsky), (e) Chanson de Mai (Gall); Tartar Dance (Borodin); Hungarian Dance in G Minor (Brahms); Songs: (a) Air and Minuet from Manon (Massenet), (b) Elsa's Dream from Lohengrin (Wagner). Orchestra: Entr'acte from Lohengrin (Wagner). 8.20, Sports Notes. 8.25, Radio Journal. 9.30, Mozart Concert by the Station Orchestra, conducted by J. Oziminski. Soloists: T. Ochlewski (Violin) and M. Szaleski (Viola). Overture, Don Giovanni; Minuet from the Divertimento; Concertante Symphony for Violin, Viola and Orchestra. 3.10, Reading. 9.25, Dance Music. In the interval at 9.55, Weather Report and Police Notes.

ZURICH.—See **Schweizerischer Landessender.**

Foreign programmes continued on page XIII.

PROGRAMMES CONTINUED

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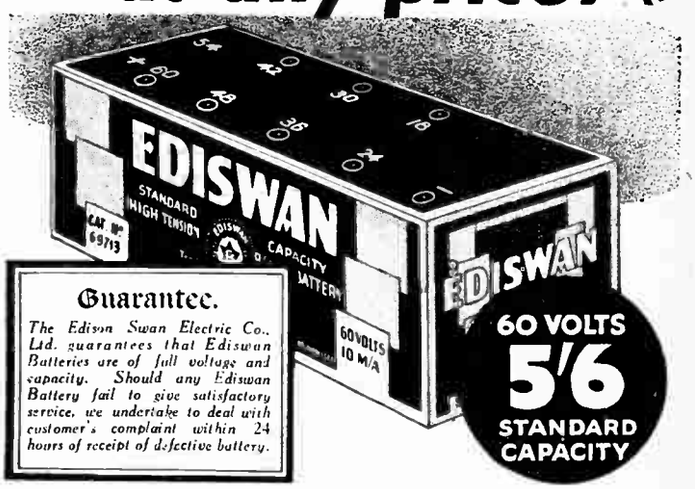

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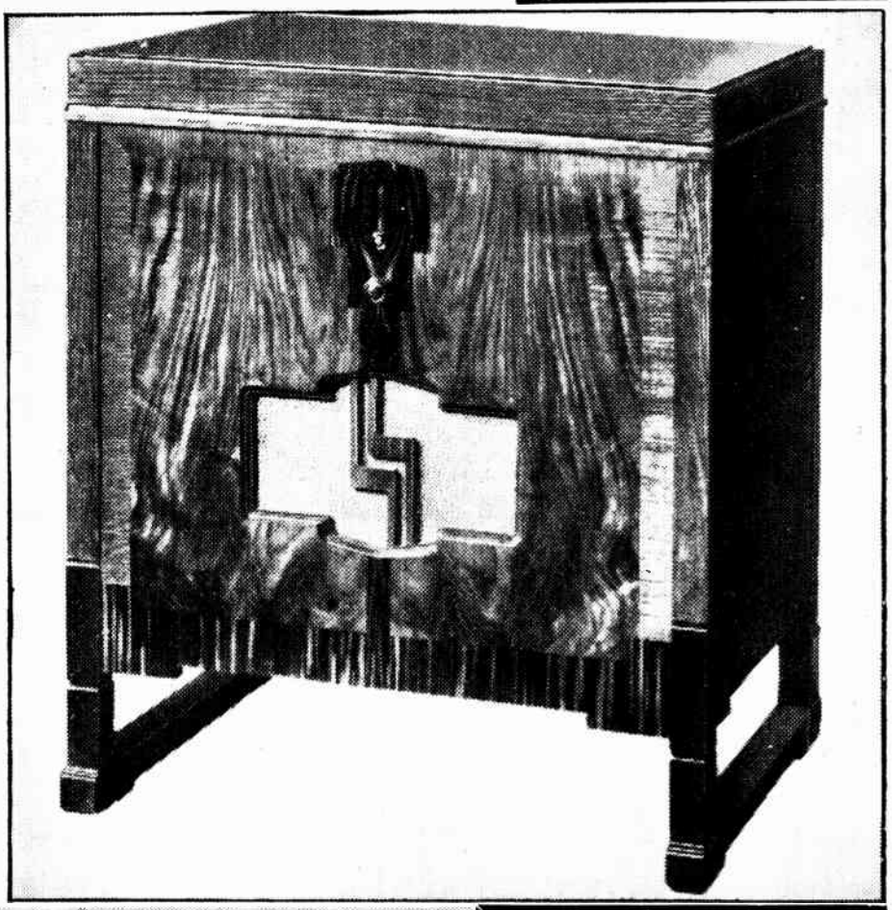

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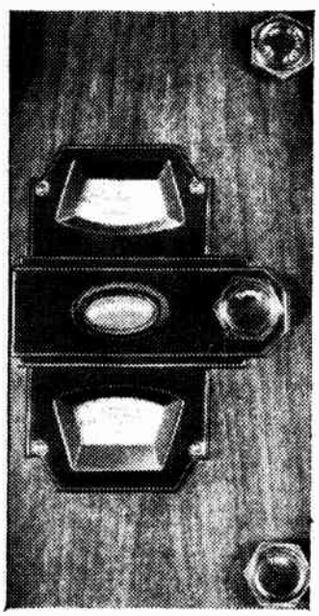
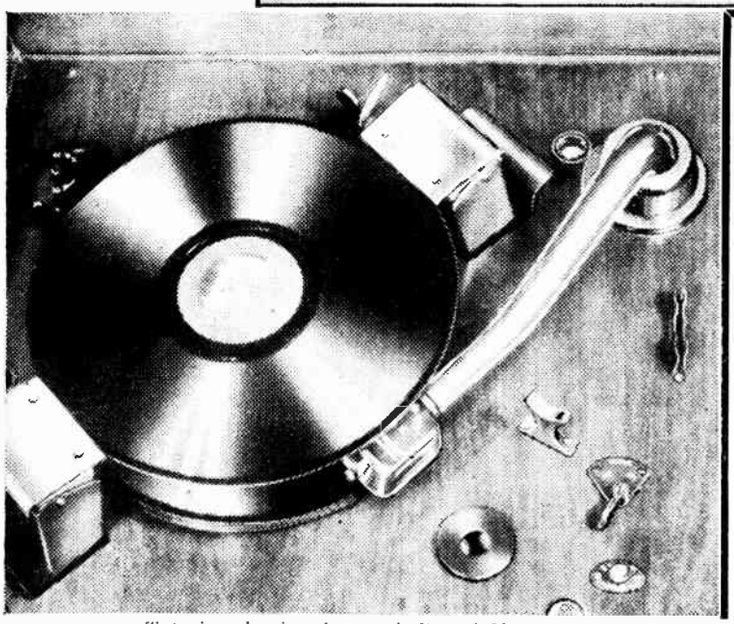
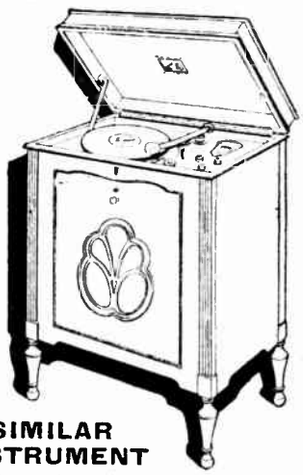


Arrangement of Controls



Top view showing Automatic Record Changer



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As many of the circuits and apparatus described in these pages are covered by patents, readers are advised, before making use of them, to satisfy themselves that they would not be infringing patents.

CONTENTS

	Page
PROGRAMMES FROM ABROAD, pp. I—XXIV	
Editorial Comment	217
The Midget Universal Mains Set	218
The Screened H.F. Pentode	221
News of the Week	223
Adding A.V.C. to the Monodial	224
Unbiased	228
Broadcast Brevities	229
Letters to the Editor	230
Practical Hints and Tips	231
Readers' Problems	232

EDITORIAL COMMENT

Automatic Volume Control

An Essential Fitment

IT is not too soon to contemplate what is likely to be the general trend of design of receivers of next season, and one thing appears to us abundantly clear: that designers have a very busy time immediately ahead of them if they are to be ready for next season with new receivers which will do justice to the wealth of intriguing new valves and circuit arrangements.

From the point of view of the sensitive set designed to receive a choice of foreign programmes, the most outstanding development is undoubtedly the provision of automatic volume control. There are various methods of applying it to choose from, but whatever the system the general result of its incorporation in a sensitive modern receiver is the same; even those stations which hitherto faded up and down to such an extent as to make reception scarcely worth while are receivable at constant strength and often comparable with what is termed "local-station" reception in quality.

Automatic volume control is, in our view, of such importance to every set claiming to be more than a "local-station" receiver that we cannot help believing that next season there will be but a poor market for any receiver of this type which does not incorporate it in some form.

We complete in this issue the description of how to apply A.V.C. to the Monodial A.C. Super; there could be no more suitable receiver for the purpose, for from the point of view of distant reception at good quality it is unsurpassed and its extreme sensitivity leaves a margin of amplification sufficient to cover almost the worst examples of fading.

There are many readers who may not feel prepared to embark on the construction of an elaborate set until they have tested out the advantages of automatic volume control in some less ambitious form first. We think, therefore, that a little unit which we shall describe in next week's issue should achieve wide popularity. This is an automatic volume control unit costing only a few shillings to construct, which is applicable for use as an addition to any receiver with an efficient H.F. stage.

Every reader who has not already tried out some form of automatic volume control will want to try this unit, which is the first constructional device to provide for A.V.C. with existing sets.

Midget Sets

Are They Worth While?

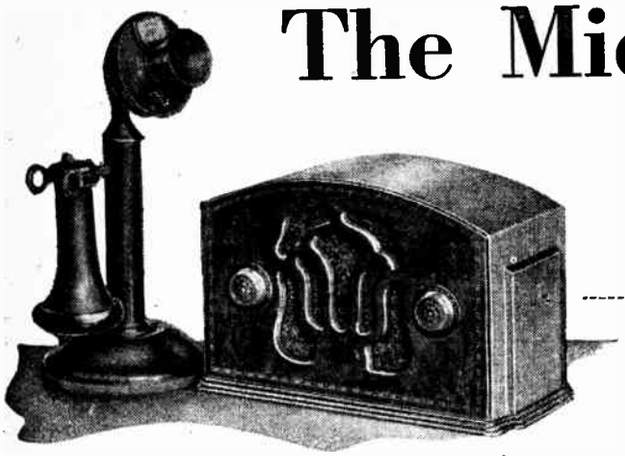
THERE has been almost a stampede amongst manufacturers in America in recent months to devise something new in the way of radio sets, so as to tempt buyers who are by no means as plentiful as before the American financial crisis.

One of the products of these efforts is the midget set, a complete receiver designed on the smallest possible lines, incorporating the loud speaker and having the additional novelty of operating from both D.C. or A.C. supply. An article on these sets from an American correspondent appears in this issue, and although it is implied that the enthusiasm for this type of set has now almost died down, it is possible that with our varied electric supplies it may find favour in this country. Unfortunately, however, it would appear that size rather than quality of reproduction has been made the first consideration in design.

The Midget Universal Mains Set

The Latest American Innovation

By KEITH HENNEY, New York



The Pierce Airo—a complete receiver with built-in speaker.

ENORMOUS sales of a new type of midget receiver workable without alteration from A.C. or D.C. mains have helped to revive the American radio industry in the midst of national depression. In view of this "midget" craze it is pertinent to ask whether such a set would find favour over here. At all events details of the new valve technique afford interesting reading.

AT a time when the American radio market seemed utterly dead, a new craze has revived it, the craze of the universal D.C.-A.C. set; a receiver that cares not to what kind of power circuit it is connected, a receiver employing some of the newest circuits and valves, so that it is bound to interest British manufacturers and listeners.

Almost overnight it has developed into a full-fledged industry in which those builders of sets that had small plants, small overheads, and no warehouses filled with obsolete receivers could capitalise. Thus it is that comparatively unknown manufacturers have been able to do over a million dollars' worth of business, and, in fact, have seemingly exhausted the market before the big companies could get under way.

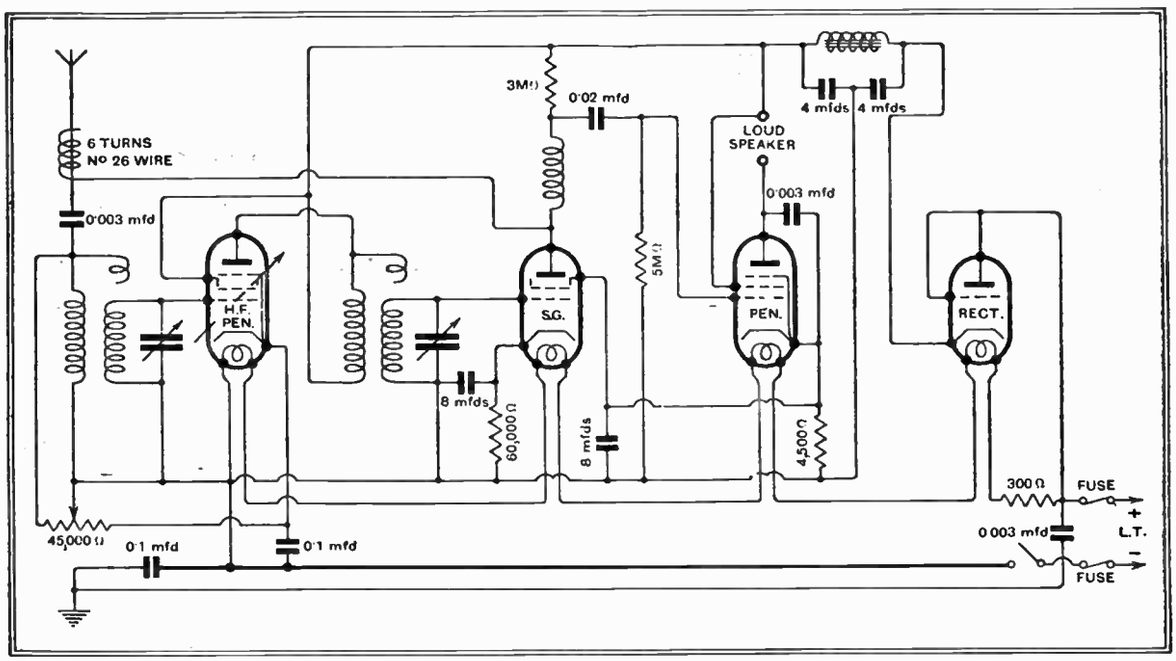
Just what it is about these tiny cigar-box sets, or vest-pocket sets, as they are often called, sets which will operate from either D.C. or A.C., that so impresses the public, one cannot say. Certainly it is not the D.C.-A.C. feature, for but 5 per cent. of the population of the United States live in D.C. districts; certainly, it is not the fidelity of response of the newest batch of midgets, for there is so little bass that it might as well be absent completely. It must be that people have wanted very small, easily portable, and fairly good-looking sets. The public was apparently tired of sets made to look like a mantle-clock and actually reminding them of a tombstone. It wanted wireless that looked like wireless, and in the universal set it got it. Soon the market was surfeited with models from half a dozen companies.

In the English market, with the problem of many kinds of power, the circuits employed in these American midgets ought to be of interest. There is no reason why a really high-class receiver of high sensitivity, selectivity, and fidelity cannot be built using the same principles. In America the circuits and valves are used to make cheap sets, but the principles may come into general practice. Another season may tell this story.

The Kadette introduced by International is made in a bakelite case in several colours. The listener can take his choice. At the start of the craze he paid 25 dollars for the set; the dealer made 10 dollars on each one sold; if he cut this price he lost his franchise. This was unusual in the American market, where dealers have been educated by their manufacturers to cut prices. Furthermore, the manufacturer in this case maintained his price; again, an unusual procedure. Usually, the manufacturer no sooner gets rid of a batch of sets to his dealers than he cuts the price from under the dealer and announces a new model. Therefore, the action of International pleased the dealer, and the public; and, because the little set had great novelty value, it sold.

It is said that about one million dollars' worth of the sets have been sold; one manufacturer in New York City, hitherto almost unknown, has sold nearly 100,000 of the sets. Now there are many of them on the market, the price is being cut widely, and the fad is nearly over. But its influence will last some time, especially as its circuits are of considerable importance.

How does the universal set work? In the first place, new valves made the set possible. It utilised valves designed originally for car receivers. The valves are all of the heater type, using 6.3 volts and consuming 0.3 ampere. The universal sets use four of these valves, all the filaments being operated in series. The first valve is almost invariably a 39 (equivalent to the British H.F. variable-mu pentode, described elsewhere in this issue). The detector, which immediately follows this single-stage amplifier, is a 36, which is a screen-grid valve. This drives a pentode which works into a

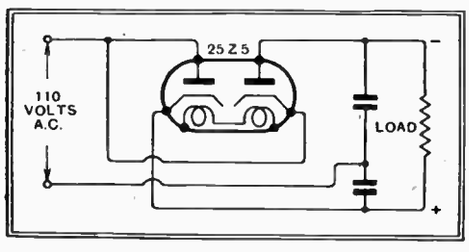


The Crosley Totem set with screened H.F. pentode; an indirectly heated triode acts as mains rectifier.

The Midget Universal Mains Set

magnetic type of loud speaker. Finally, there is a rectifier, usually a 37, also belonging to the automobile series of valves, a triode with grid and plate connected together.

The rectifier (and this is of interest to the English manufacturer) stays in the circuit, whether the receiver is operated on D.C. or on A.C. On A.C. it acts, of course, as a half-wave rectifier, furnishing energy to a filter system which smooths out the bumps and passes along to the other valves their plate power. But on D.C. the rectifier merely acts as a resistance in series with the plate circuits of the other tubes. If the set is plugged into the D.C. line properly, the plate of this rectifier tube will be positive, and, of course, current will flow through it. But if the set is plugged in the wrong way round, nothing at all happens. The set is therefore really universal, operating on either D.C. or A.C. without any changes whatever. Universal sets have, of course, been on the market in England for some time, but in this case use has been made of a high-voltage rectifier.



The 25.Z5 rectifier wired in a voltage doubling circuit.

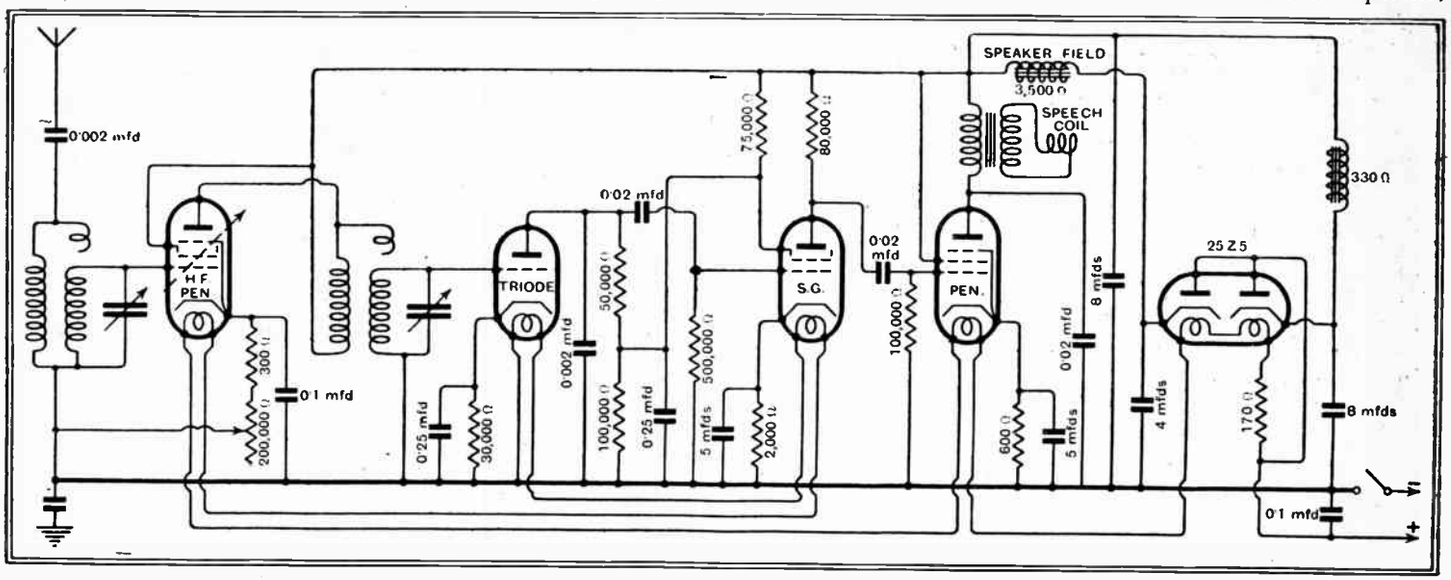
Some manufacturers have adapted this central design to work on other voltages; either 32 volts for farms with their own lighting plants, or on 220-volt circuits. When the set operates from 110 volts the four 6.3 volt valves in series only account for 4 × 6.3 or 25.2 volts, and so there must be some additional series resistance so that the string of valves can be put across the 110-volt line. This resistance is of the order of 300 ohms, and must dissipate about 27 watts. If the set is to operate from 220 volts, more voltage must be wasted in this series resistor, but that is not a difficult problem. This is the most usual circuit.

In some cases there is a gaseous rectifier resembling the older Raytheon tube, except that this tube is usually a half-wave rectifier. In other cases a special plug is used on D.C., which disconnects the rectifier system. In still another case a relay operates when the set is plugged into D.C., and this relay opens the rectifier circuit. Such complications are rare, however, and there seems little likelihood that many receivers will be built using them. After all, the simplest circuits seem to work properly, and so give the greatest value for the least effort and money.

Of course, the bass response in these little sets is very poor. Therefore, there is little need for expensive filtering. A single choke with 4-mfd. electrolytic condensers at either end furnishes the required smoothing.

Nearly always the set operates without a transformer. Of course, on D.C. the transformer could do no good; and on A.C. the voltages available are sufficient to secure appreciable amplification and power. In the average home 110 volts is available, and with the successful efforts toward making valves more efficient there is little need of higher voltages. The power expected of the little sets is not much, about one watt into the speaker, and so the 110-120-volt lines supply plenty of pep.

To increase the sensitivity and selectivity of the receiver, regeneration is employed. This is accomplished either by inductive or capacitative feed back from detector to the H.F. stage, or the coils are so placed that the natural coupling is assisted somewhat by capacitative effects. At any rate, the man who instals the set, or sells it, adjusts it so that the thing does not oscillate, but is pretty near it most of the time, and once plugged into the light socket it is ready for action.



Universal Ica-Mascot, in which the new 25.Z5 rectifier is used. Note the order of wiring the heaters.

CHARACTERISTICS OF VALVES USED IN UNIVERSAL A.C.-D.C. SETS.

Type.	Purpose.	Filament. Volts.	Filament. Amps.	Anode Volts.	Anode Current.	Bias.	Screen Grid Volts.	A.C. Resistance.	Amp. factor.	Mutual Conduct.	Power Output (mW.).	Optimum Load.
36	H.F. Amp.	6.3	0.3	180	3.1	3.0	90	350,000	370	1.05	—	—
37	General Purpose	6.3	0.3	180	4.7	13.5	—	10,000	9	0.9	—	—
38	Power Amp. ...	6.3	0.3	135	9.0	13.5	135	102,000	100	0.975	525	13,500
39	Vari-mu	6.3	0.3	180	4.5	3.0	90	750,000	750	1.0	—	—
25.Z5	Voltage Doubler	25	0.3	A.C. volts per plate R.M.S. = 125; D.C. output current = 100 mA.								

Another Midget Universal mains receiver—the Crosley four-valve Super.

A New Rectifier

The large loss of voltage and wastage of power in the 300-ohm resistor to reduce the voltage across the valves to the proper value has been overcome to some extent by the development of a new rectifier, the 25.Z5 (this is one of the first valves to use the new American numbering system.

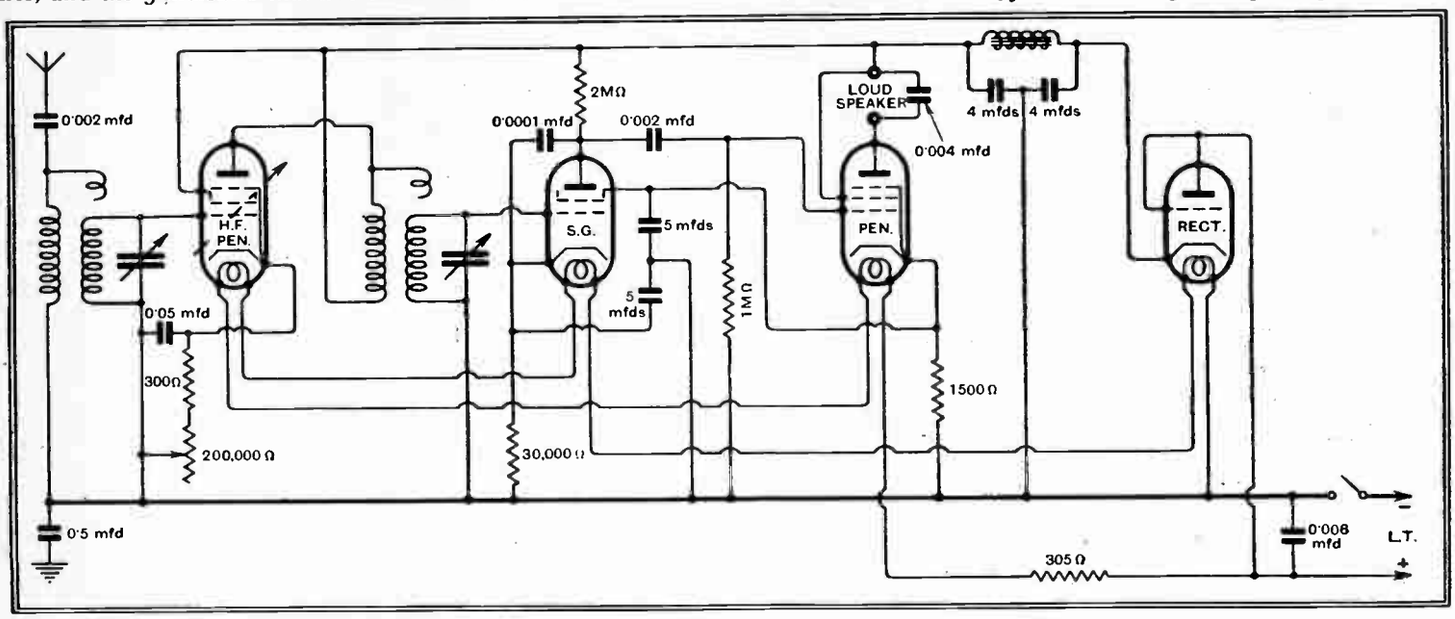
The Midget Universal Mains Set

The 25 indicates that the filament voltage is 25, the Z indicates that it is a rectifier, and the 5 indicates that five elements are brought out to pins in the base). This valve has two cathodes and two anodes, and all leads are brought out to the base.

Thus, the valve can be connected as a single-wave rectifier by merely connecting the plates and cathodes together, or it may be used in the conventional full-wave rectifier circuit, or it may be connected in the voltage-doubling circuit used by so many amateurs. In the voltage-doubling circuit 220 volts may be secured from a 110-volt circuit without the use of a transformer, so that another saving has been made, both in cost and in space.

This valve with its 25-volt filament takes care of a considerable part of the voltage used up in the 300-ohm resistor, so that now a 170-ohm resistor is used with less heat to be dissipated.

The capacities necessary to be used with the voltage-doubling circuit are somewhat greater than with a more conventional circuit, but the voltages they must stand are only the line voltage. Cheaper condensers can therefore be used, and with the proper capacity plenty of current at twice the line voltage is available.

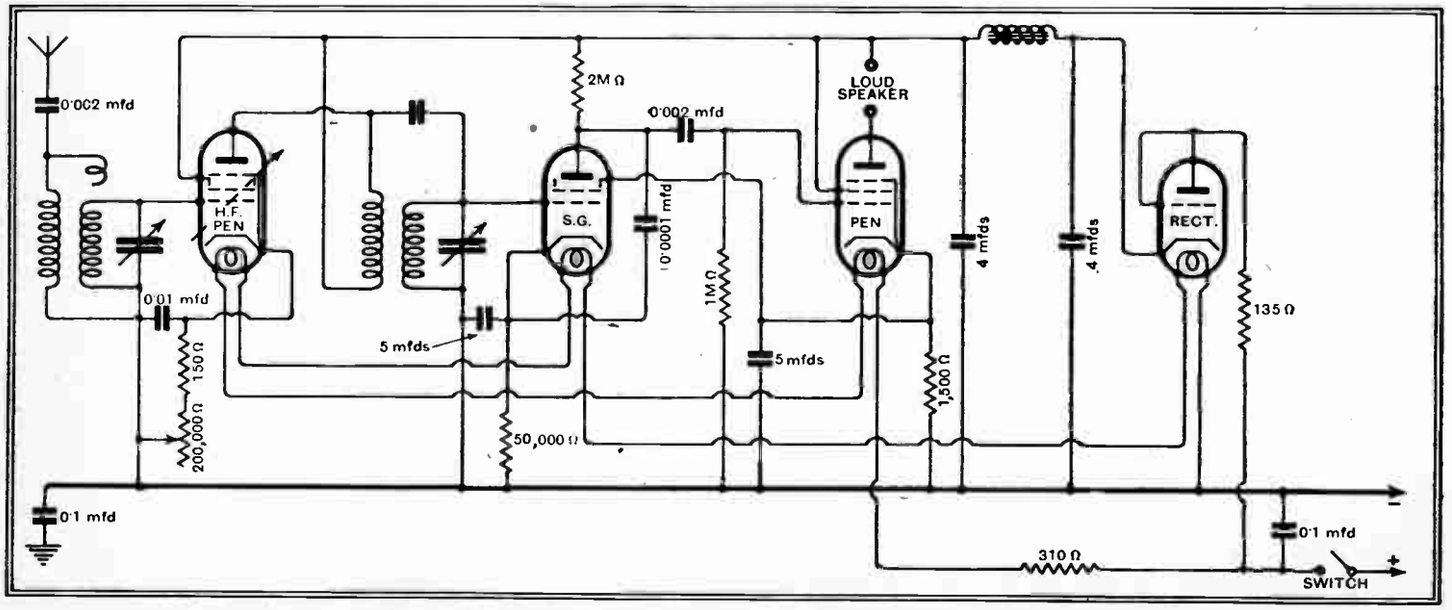


The Emerson Universal Compact making use of a general purpose valve as mains rectifier.

Successful as the 4-valve cigar-box radios were (about 100,000 were sold up to February), a new development threatens their sale. This is a five-valve superheterodyne with much greater pick-up and selectivity than the four-valve tuned radio-frequency set. This, in turn, will be supplanted by a less expensive four-valve super, then still cheaper supers will be available. It is even rumoured that a two-valve super will come along about the middle of 1933. These small sets are made possible by developments in the valve industry. Valve engineers have been successful in combining the functions of two valves into one bottle, with consequent saving of space and set cost.

And so it goes on. The aim is always to reduce the selling price of the set. Competition, and lowered purchasing power of the public in America, forces the industry to lower levels, and at the same time to put more and more efficiency into the receivers. In the case of the universal set, many of the lessons learned will undoubtedly prove of value in future.

International Kadette Universal Midget, claimed to be the smallest four-valve receiver in the world. It weighs only 6 pounds and covers little more than the palm of the hand.



International Kadette Universal Midget set with screen-grid detector.

The Screened H.F. Pentode

Its Advantage as an H.F. Amplifier and Detector

The new Mullard SP4 and VP4 valves—the screened and variable mu pentodes respectively.

IT has long been known that the ordinary screen-grid valve is handicapped by a secondary electron effect which introduces a kink in the characteristic and thus limits its signal-handling capacity. In the screened H.F. pentode and the variable-mu pentode about to become available in this country, this disability is avoided and the substitution of the new valves for their S.G. tetrode counterparts, in both straight sets and superhets., will result in considerable improvement in stage gain and stability.

By T. E. GOLDUP *

THE development of the high-frequency or screened pentode represents a further improvement in high-frequency amplification, and its advantages are not confined to this stage of a receiver.

The screened pentode is similar in external appearance and connections to the screen-grid valve, and may be regarded as a development of the screen-grid tetrode rather than the normal L.F. pentode. By the introduction of an additional grid between the anode and screening grid of the screen-grid valve, the special characteristics of the H.F. pentode are obtained. This grid, as in the L.F pentode, has the effect of removing the negative resistance kink from the characteristic of the tetrode and also gives an extremely high magnification factor together with an adequate slope.

Advantages Over S.G. Valve

The impedance of the screened pentode is generally considerably higher than that of the tetrode, and consequently the sensitivity of the H.F. stage will depend very largely on the dynamic impedance of the tuned circuits. This high impedance of

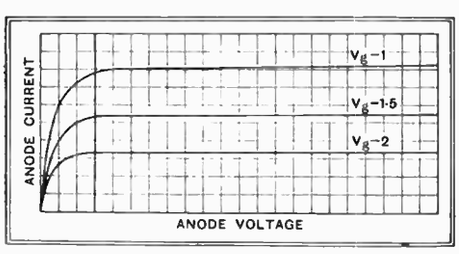


Fig. 1.—Typical characteristic curve of an H.F. pentode. It will be seen that the negative resistance kink, common to the screen-grid tetrode, has disappeared.

the pentode ensures practically unaltered radio frequency characteristics of the associated circuits, and, in addition, if really efficient coils are used, the gain will be very much greater than that obtainable with a tetrode. Even with normal coupling coils, the H.F. pentode will give improved results over a screen-grid valve.

In spite of its very high magnification factor, the pentode has a grid base equal to that of a normal tetrode, although, in general, where signal voltages of varying amplitude are to be handled, the multi-mu pentode would be used, in the same way as the multi-mu screened grid.

Following the usual practice in high-frequency amplifiers, the multi-mu pentode is preferable to the normal type for both high- and intermediate-frequency stages, as it has the additional advantage of sensitivity control by negative bias variation, and has, at minimum bias, a stage gain equal to that of the normal screened pentode.

It is well known that, in the case of the screen-grid tetrode, considerations of secondary emission effects limit the screen voltage to a narrow region. No such restriction exists in the pentode valve, where secondary emission effects have been eliminated, and by suitable variations in auxiliary grid voltage, wide adjustment of the multi-mu characteristics is possible.

The resistance network required to maintain the auxiliary grid voltage at a constant potential, irrespective of bias variation, is similar to that for multi-mu tetrodes.

One of the main spheres of usefulness of the screened pentode lies in its application as detector, and particularly as that of first detector in superheterodyne receivers. It can be used quite satisfactorily with any of the circuits already developed for screen-grid valves, and will give improved results with less critical voltage adjustment.

An efficient, though quite simple, circuit arrangement has been developed which takes advantage of the pentode characteristic, a curve of which is shown in Fig. 1. It will be seen that with low anode voltages (such as 30 volts) on the anode and with normal auxiliary grid and control grid voltages, there is a sharp "knee" in the characteristic curve, and if the valve is operated just above this point, excellent rectification is obtainable with complete absence of re-radiation.

This method of rectification is not possible with screen-grid valves because the negative resistance characteristic gives rise to dynatron oscillation.

Single-valve Frequency Changer

Fig. 2 shows a suitable circuit arrangement for operating the screened pentode as a first detector under the above conditions.

A further important use of the screened pentode is undoubtedly its application as a combined oscillator-detector. Although for this purpose the auxiliary grid coupling method can be employed, cathode coupling using a suitably designed circuit is more satisfactory. Using the former method, with the comparatively small coupling coil permitted by the high amplification factor of the valve, re-radiation is less than when using the most suitable L.F. pentode, previously considered to be most satisfactory in this respect.

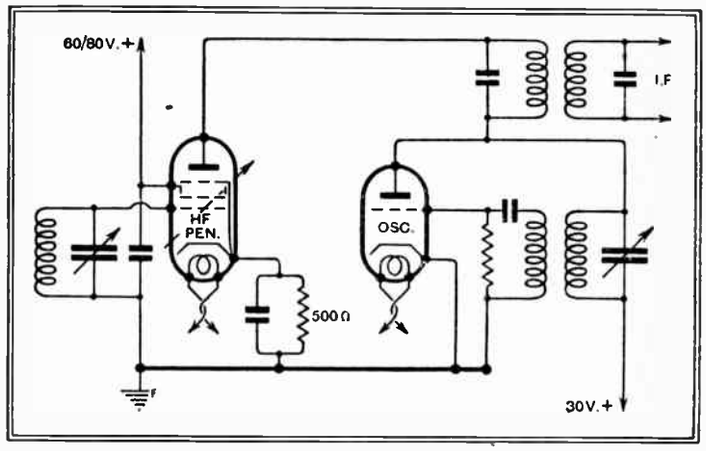


Fig. 2.—Skeleton circuit of a two-valve frequency changer in which the first detector is an H.F. screened pentode.

The prevalent opinion in this country, that cathode coupling causes excessive re-radiation, would seem to indicate that it was not realised how small the coupling coil could be made while still maintaining sufficient coupling for oscillation. A small coil (of about 5 microhenrys for medium waves) gives extremely satisfactory results,

* The Technical Department, The Mullard Wireless Service Co., Ltd.

The Screened H.F. Pentode.

and the re-radiation voltages are considerably lower than those given by any other coupling method. It should be noted that the use of too large a coil may give bad re-radiation.

Fig. 3 shows a circuit arrangement suitable for a cathode-coupled oscillator-detector using a screened pentode.

Used for negative-bend detection, the pentode has the important advantage that larger anode voltage swings are possible than with the screen-grid tetrode. As there are no secondary emission effects the maximum anode voltage swing is practically a constant with normal external anode resistances. Due to the very high impedance, sensitivity is practically proportional to the anode resistance chosen, but the usual limitations imposed by the necessity of retaining the higher audio frequencies must be carefully taken into account.

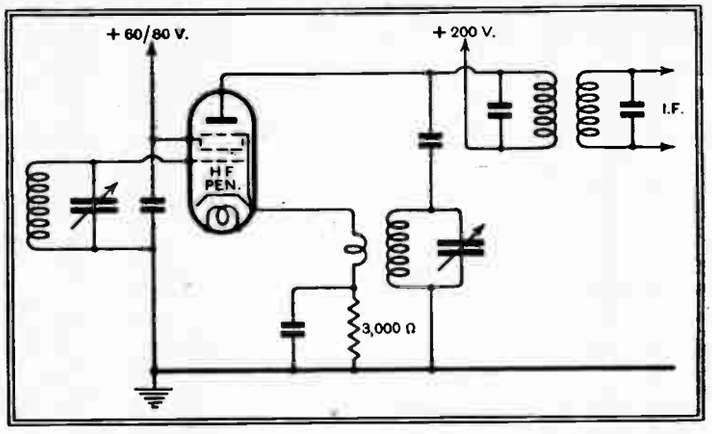


Fig. 3.—The screened pentode as a single-valve frequency changer with cathode coupling.

DISTANT RECEPTION NOTES

IN view of the heterodyne which recently accompanied the Huizen (Hilversum programmes) transmissions one wonders whether alterations have been made in either the Kaunas or the Lahti transmitters. Though the former is rated at 7 kilowatts and the latter at 40, neither is as a rule at all strongly received in this country, nor have there been noticeable heterodynes with Huizen. The interference appeared to be coming from a station on a higher wavelength, and this points to Kaunas as the source of the trouble.

A kind correspondent from Warsaw sends me official particulars of the Polish stations. A week or two ago I referred to the amazing strength with which Katowice was received in this country, and suggested that the output power might be in excess of the 16 kilowatts shown in the lists. My correspondent, who is an electrical engineer, tells me that the unmodulated power of Katowice is 12 kilowatts, or 16 kilowatts when working with average modulation depth. The station is very well situated for providing a large service area, since it stands on high ground, and there are no large conducting bodies in the neighbourhood which might cause absorption.

Improvements are to be carried out at Katowice within the next few weeks with a view to eliminating harmonics, but the power rating will not be altered. I hear that Warsaw No. 2 on 214.3 metres is temporarily out of action. The actual modulated power rating of Lodz, Poznan, and Cracow is 2 kilowatts, whilst Lwow and Wilno (now working on 563 metres) work with 16 kilowatts unmodulated, or 22 kilowatts modulated.

A new station is to be built at Trondheim (495.8 metres) with a power rating of 20 kilowatts, and the power of the Bergen transmitter (364.1 metres) will be increased at the same time also to 20 kilowatts. One rather wonders how these new big stations will be fitted in, for at present Trondheim is separated by only 6 kilocycles from Florence, while Bergen is 3 kilocycles from Fredriksstad, and but one from Algiers on the other side.

Wonderful reception is obtainable at present from Rome, which with even a small set comes through with splendid quality and volume. Other good Italians are Florence and Milan, but Turin and Trieste have suffered badly from heterodyne troubles.

Conditions all round are, in fact, much better than they were a week or two ago, the improvement being particularly noticeable from about 430 metres upwards. Budapest, Munich, Brussels No. 1, Prague, Langenberg, and Lyons Doua hardly ever fail to provide good reproduction. It is a thousand pities that Berömunster is still so often jammed.

Madrid is more worth attention than it was, and Hamburg, which had a long spell of weakness at the beginning of the year, is now an excellent transmission.

Heterodynes, due mainly to wavelength wobble or wandering, are unfortunately rather numerous on most nights. In addition to those mentioned, stations that have been affected in this way are Bordeaux, Leipzig, Katowice, and the Poste Parisien.

On the long waves Kalundborg is still not in very good form, though all of the other well-known stations can be well received in daylight or after dark.

D. EXER.

THE BRUSSELS NOTEBOOK

Wavelength Vagaries during February

AN unknown Russian telephony station operating between Radio Paris and Zeesen supplies the usual element of mystery in the records of the Brussels control station of the International Broadcasting Union for February.

Vienna is continuing its long wave tests, and Moscow Experimental was testing for two days at the beginning of the month on 1,481 metres, possibly in connection with the rumoured 500-kW. station. Two unknown stations have been testing in the neighbourhood of 678.7 metres, the wavelength officially allotted to the new Swiss station at Monte Ceneri, which will shortly begin transmissions on 15 kW.

Conditions on the medium waveband have not improved. Tartu is still clinging to 512 kc. which is perilously close to the shipping wavelength. Palermo on 558 kc. continues to heterodyne Munich in spite of protests. Radio Vitus moved away from Cardiff's wavelength and seems to have decided to remain on the Zagreb wavelength. Bremen appears to be the black sheep among the German stations, for while the Hungarian relay and Valencia adhere to the wavelength which they are supposed to share with Bremen, the German station continues to wobble.

According to the Brussels records, Aberdeen and Newcastle were not as steady as they might have been.

In Next Week's Issue:—

The A.V.C. Unit

Automatic Volume Control for Practically any "H.F." Receiver.

FADING is now the only serious obstacle to consistent and enjoyable long-distance reception; in order to maintain sensibly constant loud speaker volume, frequent adjustment of the controls is often necessary, as compensation for minute-to-minute changes in the strength of inconing signals.

With automatic volume control the receiver may be left in its most sensitive condition with the assurance that, during periods of "peak" signal, the usual distressing overloading will not occur. To cope with fading signals, the necessary sensitivity will be automatically restored as and when it becomes necessary.

The addition of a conventional A.V.C. system to many types of set necessitates a number of alterations, and involves the risk of reducing maximum sensitivity, restricting wavelength coverage, or even of introducing instability. The A.V.C. Unit, on the other hand, is a self-contained unit, connected externally by four leads, and its addition cannot have any untoward effects. It is applicable to "straight" H.F. sets or to superheterodynes, whether battery or mains-operated.

LIST OF PARTS.

After the particular make of component used in the original model, suitable alternative products are given in some instances.

1 Valve-holder, horizontal type — **W.B. "Universal"**
1 Potentiometer, 50,000 ohms — **Rotor-Ohm**
(Bulgin, Lewcos, Claude Lyons, Radiophone, Watmel, Wearite)
1 Resistance, fixed, 0.25 megohm — **Erie**
(Dubilier, Graham Farish, Loewe, Claude Lyons)
1 Fixed condenser, 0.5 mfd. — **Dubilier**
(Formo, Hellesens, Peak, Radiophone, T.C.C., Telsen)
1 Dry cell, 1.5 volt — **Ever Ready Size "O"**
(Lissen, Siemens)
1 Connector, 5-way — **Wilburn**
5 Wander plugs, H.T.−, H.T.+, G.B.+, G.B.−, G.B.−1. — **Clix Type "B"**
(Belling-Lee, Bulgin, Eelex, Goltone, Lissen)
2 H.T. batteries (see text).
Wire, sleeving, flexible wire, screws, wood, etc.

NEWS of the WEEK

Current Events in Brief Review

Sporting Offer

MR. S. G. MORGAN (G6SM), 3, High Street, Croydon, Surrey, would be glad to hear from the person who has been using his call sign for tests on 40 metres so that he can forward a batch of reports.

Radio at Paris Fair

RADIO will feature at two forthcoming Paris exhibitions, namely, the Foire de Paris at the Porte de Versailles in May next, and the International Cinematograph, Gramophone and Radio Salon, opening on June 15th next, also at the Porte de Versailles.

Theatre Broadcast Record

GERMAN programme builders probably rely more on theatre and opera broadcasts than those in any other country. During 1932 there were no fewer than 140 relays from theatres and opera houses. The greatest number of relays have been given from the National Theatre in Munich.

Long Waves in Demand

SEVEN countries which are at present restricted to the medium band applied for long waves at the recent Technical Conference of the International Broadcasting Union at Brussels, and will probably uphold their demands at the Lucerne meeting.

There are only eleven long-wave channels available for broadcasting, and these are all in use.

A Melancholy Exam.

"I CAN only describe the results of this examination as appalling," writes the examiner in his report on the June, 1932, Associateship Examination of the Institute of Wireless Technology. "The candidates almost to a man are illiterate." "They cannot set out an answer to a question involving a numerical result in any intelligible form," "There is no knowledge shown on fundamental principles," are other phrases which occur in the survey.

None of the competitors, it seems, showed the slightest conception of the law of the sine wave. "These," declares the examiner, "are wireless men!"

Programme Exchanges

GERMANY offered the rest of Europe and America 288 broadcast programmes during 1932, and relayed 250 programmes from foreign countries.

The Early Bird

MORNING broadcasts between 7 and 9 o'clock are now a feature at Poste Parisien. Reveillé is sounded at 7 a.m. with lively gramophone music and good-humoured banter by the announcer, followed by a rapid review of the morning newspapers.

The station welcomes "appreciations and suggestions," which should be sent to 116, bis Avenue des Champs-Elysées.

Death Ray Again

EVIDENTLY we were mistaken in our belief that the "death ray" had been decently buried, for a lethal beam answering to this description is being blamed for interference to listeners' sets in the Beckenham area.

It seems that interference is noticed on the long waveband from about 9 p.m. onwards. Post office experts have endeavoured to trace the origin of the noises without success.

Big Ben Impersonated

AN artificial Big Ben has been cleverly contrived for broadcasting regular chimes from loud speakers on the Marconiphone building in Tottenham Court Road, London, between the hours of approximately 8 a.m. and 8 p.m. Unable to secure permission to relay the actual chimes from Westminster, the engineers constructed an electric clock, frequency controlled from Greenwich, with a chime exactly like that of Big Ben himself.

Across Siberia

SUCCESSFUL tests on wavelengths of between 25 and 45 metres have been carried out between Moscow and Shanghai by the Radio Department of the Commissariat for Communications of the Soviet Government.

A Chief Resigns

THE sudden resignation is reported of Herr Schäffer, Chief Engineer of the German Broadcasting System. It is stated (says a correspondent) that the contract between the chief engineer and the Reichs Rundfunk Gesellschaft was dissolved in view of the recent political developments.

Herr Schäffer, who was a Telefunken engineer and designed the early broadcast transmitters, has been a familiar figure at the conferences of the International Broadcasting Union. He joined the R.R.G. in 1929. No successor has yet been appointed.

MAJOR GLADSTONE MURRAY, the esteemed Chief of Information at Broadcasting House, who sailed last week for Canada to reorganise the Dominion broadcasting system on B.B.C. lines.

Noginsk Calling

ONE more Russian station, which, according to Press reports, will "wipe out" British broadcasting, is to start operations within the next few days with a power of 500 kilowatts. The station is at Noginsk, and its wavelength will be 351 metres, within 5 metres of London Regional.

Paris Show : Tenth Anniversary

THE Paris Radio Salon will celebrate its tenth anniversary this year, when it will be held at the Grand Palais, Avenue des Champs Elysées, from September 6th to 17th. Though "international" by title, it will forbid the entry of the products of those countries which do not accord reciprocal treatment to French radio manufacturers.

Have You Tried It?

IN Penang, where the local wireless society has recently held a radio exhibition, the Daventry programme is received about 1/23rd of a second after being transmitted, according to the radio notes in the Exhibition Guide.

The writer advises listeners not to meddle with their receivers when a programme is coming through and adds: "If your hands are itching to twiddle the dials, take up knitting."

Transatlantic Feat on 150 m.

ONE of the most remarkable of amateur contacts of recent years has just been made by Mr. A. Forsyth, who operates station G6FO in Newport. It took place on the 2 m.c. band, where communication was effected with WIDBM of Cape Cod, U.S.A. This contact is remarkable for the fact that G6FO had only 9.7 watts input, against the 220 watts used by the American.

Mr. Forsyth attributes his success to the fact that, during February, conditions favoured east-to-west working.

Luxembourg Testing

THE new 200-kW. station at Luxembourg is now testing with full power daily between 7 and 11 p.m. The wavelength is in the neighbourhood of 1,180 metres.

On Charge

FINED £5 5s. at Sutton Coldfield last week for fraudulently consuming electricity, a landscape gardener was said to have cut a hole in the plaster of the dividing wall between his attic and the next-door house and to have fixed flex to his neighbour's electrical cable. He then, it was stated, advertised that he could charge wireless accumulators.

By Special Request

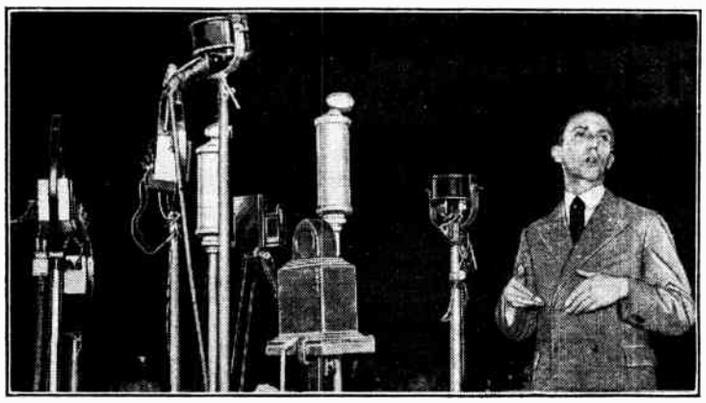
FOLLOWING a reference in *The Wireless World* Club Reports column to a "steam pipe" loud speaker constructed by a member of the Croydon Radio Society, the secretary has been overwhelmed with enquiries from all over the country. To meet the demand for further information, a special meeting is being held on Friday next, March 31st, at 8 p.m., at "The Horse and Groom," Cherry Orchard Road, East Croydon.

President as Radio Dictator

THE American broadcasting stations have unanimously placed all their facilities at the command of President Roosevelt in order that he may be able to use the wires of all networks at any time during the period of national emergency. The broadcasting organisations have thus anticipated the law which enables the President of the United States to commandeer all wavelengths for national purposes.

Meanwhile the order has been relaxed requiring all broadcasting stations to make full use of the time allotted them.

On account of the economic situation certain transmitters have found it difficult to maintain programmes, certain regular clients being unable to pay for sponsored programmes.

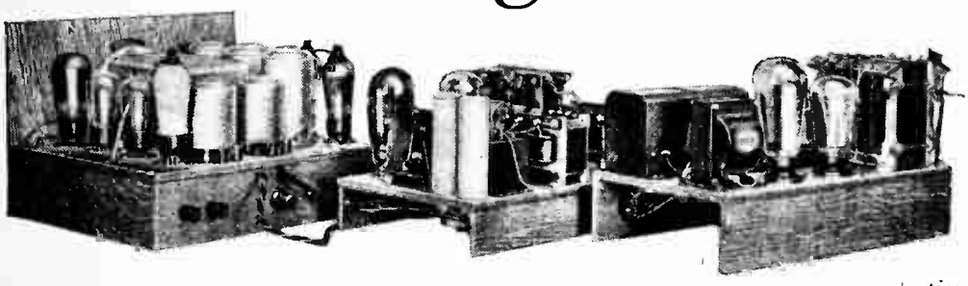


MODERN ORATORY. When Dr. Goebbels, one of the prominent figures in German politics, addressed a meeting in the Berlin Sports Palace a few days ago, nine microphones awaited him on the platform. They had been placed there by the broadcasting authorities, public address engineers and various film companies.

Adding A.V.C. to the MO

Part II. Constructional

By W. T. COCKING



IN the first part of this article, the author explained the circuit modifications necessary for adding A.V.C. to the Monodial. In this instalment constructional details are given together with some notes on the performance to be expected. The importance of A.V.C. in counteracting fading cannot be too highly stressed.

Concluded from page 210 of last week's issue.

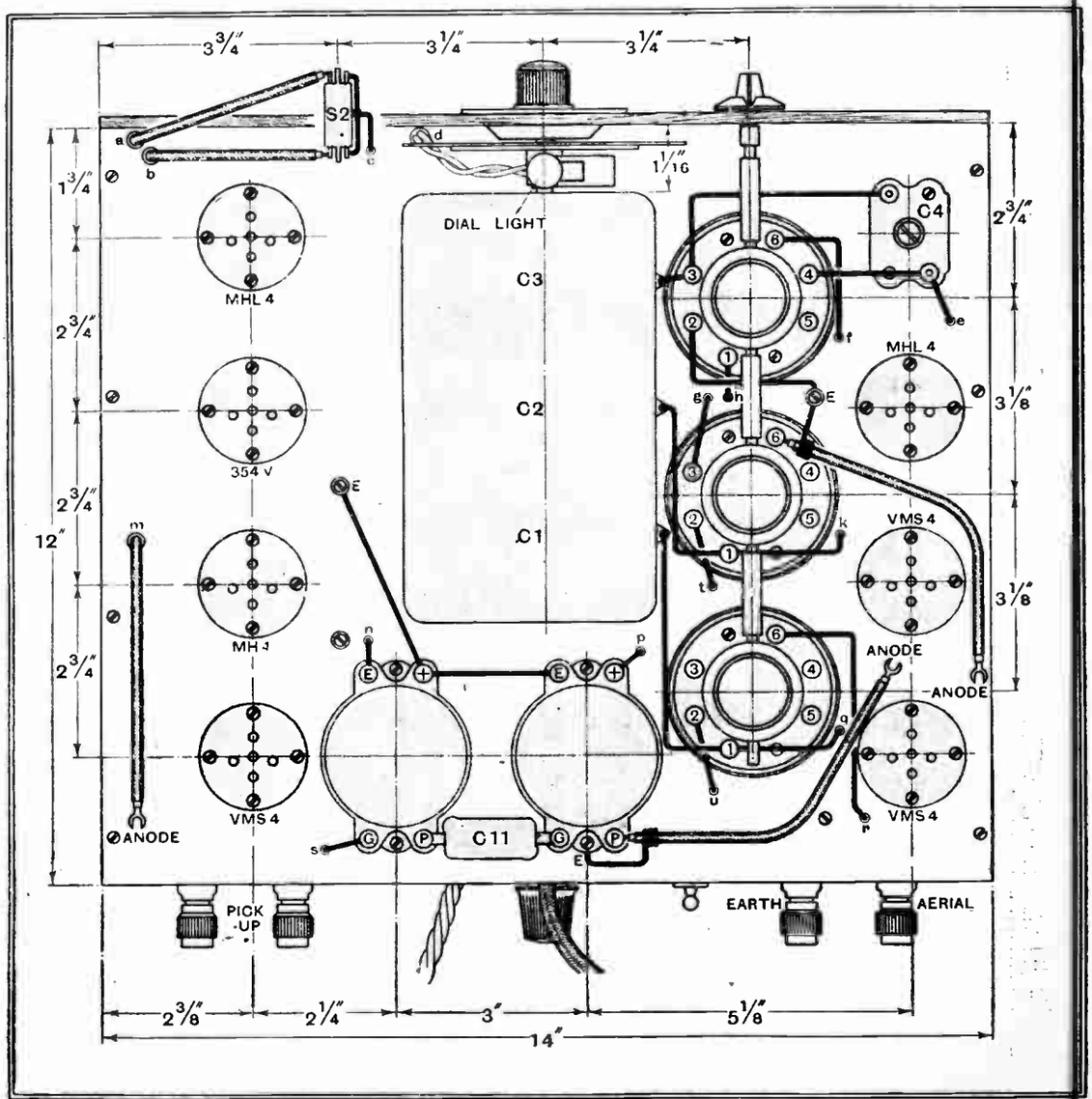
DETAILS of the alterations to the receiver chassis and the 2.5 watts power chassis have already been given, and it remains to treat the 5 watts chassis. This was originally described for the Modern Straight Five,[1] it will be remembered, but many constructors of the Monodial are using it instead of the power unit described specifically for that receiver. In this case, the conversion is considerably simpler, for there is a higher voltage available, and the speaker field can be retained in the positive H.T. lead, where it is fully effective in smoothing. No additional smoothing is thus required, and it is merely necessary to add the additional valveholder for the extra inter-unit cable, the small mains transformer, and to rearrange a few of the connections. The modified circuit diagram of this power chassis is shown in Fig. 3, and the other details will be clear from the drawings.

As in the original designs, it is assumed that the field winding of a moving-coil loud speaker will be energised from the power chassis. Where it is not desired to do this, however, a 2,500 ohms 10 watts resistance must be connected in place of the field in the case of the 2.5 watts chassis, and a 60H. 60ma. 2,500 ohms choke (suitable types are listed by Scott Sessions and Sound Sales), in the case of the 5 watts chassis. With this latter unit, it should be noted, sufficient power is available for energising dual type speakers. These should be each of 2,500 ohms field resistance, and one field should be connected to the usual points, while the other is used to replace R31.

Re-ganging

The operation of the set is the same whichever power chassis be employed, and it must always be remembered that there is a difference of potential of 125 volts between the receiver chassis and the power chassis. These must not be allowed to touch one another, therefore.

After the alterations have been made, it is highly probable that the receiver will require re-ganging; this must be done in the manner described in the original articles, but it will now be essential to include a milliameter as an indicator of signal strength. It is impossible to gang an A.V.C. set without a meter, for the ear can detect no change of volume on operating the trimmers, since this is taken up by the control. The meter used should have a full scale reading of about 10 mA., and be connected in the cathode lead of the I.F. valve at the point "X" of Fig. 1 (see last week's issue) to act as a tuning indicator. In the absence of a signal, it

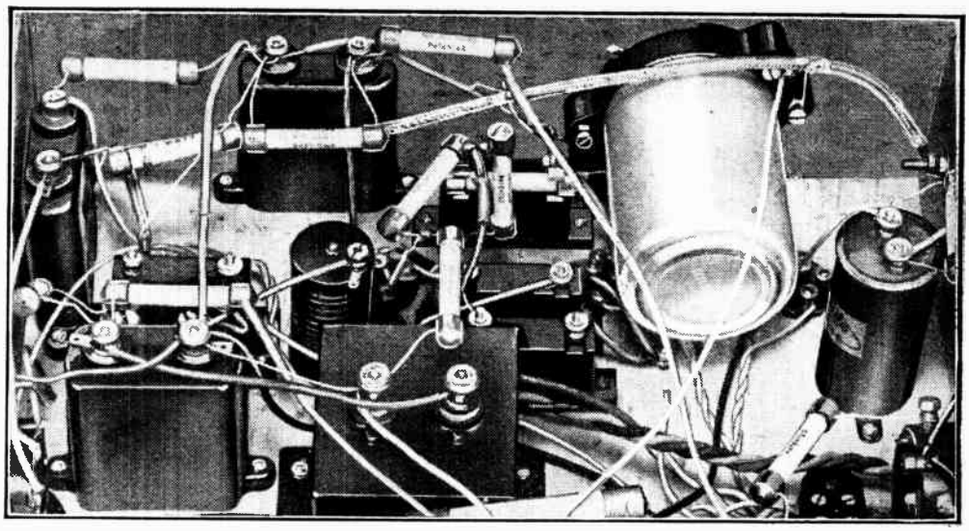


Practical wiring above the baseboard of the receiver chassis.

[1] "The Modern Straight Five," *The Wireless World*, June 22nd and 29th, 1932.

NODIAL

Details and Operating Notes

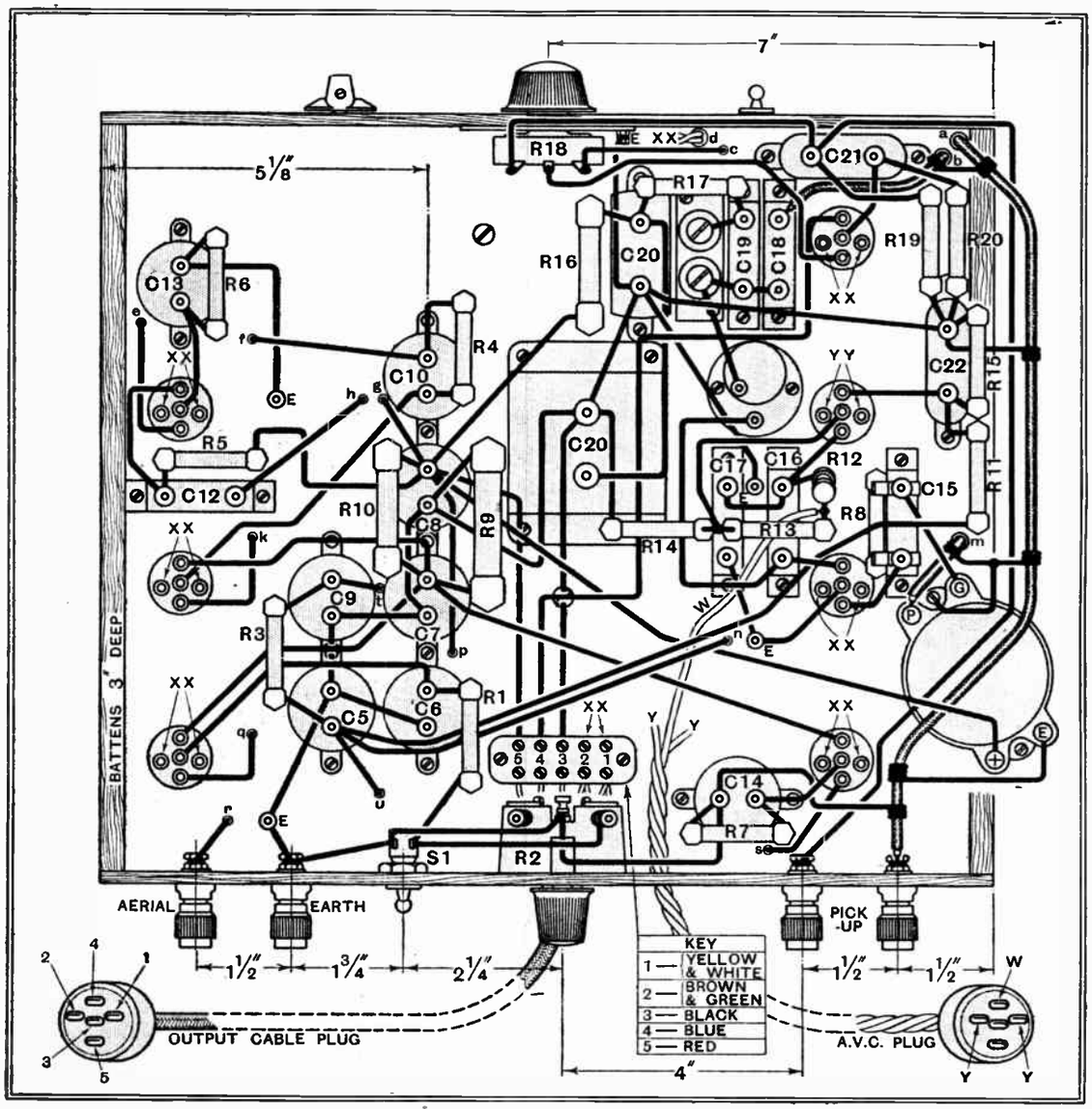


Underneath view of a portion of the receiver chassis showing the chief modifications.

will read nearly full scale—the normal anode current of this stage. When a signal is tuned in, however, it will drop back, and the stronger the signal the greater will be the drop; all trimming adjustments, therefore, must be carried out for a minimum reading on the meter, for this corresponds to maximum signal strength.

In its operation, the control may be relied upon to remove completely the effects of moderate distortionless fading, and, provided that the average modulation depth of the various transmitters is the same, it will hold the volume level approximately constant, regardless of whether the station is distant or a nearby local. The control will, of course, do nothing to remedy any distortion caused by fading, although it will still keep the volume at its normal level. When fading is very severe, it is accompanied by a rise in background noise, and the curious effect is obtained, not of a fading signal, but of a fading background. The control only functions within certain limits, of course, for if the fading be so bad that the field strength drops nearly to zero, the volume will also drop after the set has reached its maximum sensitivity. In general, however, the control may be said to remove 80 per cent. of the evil effects of fading.

It should be noted that fading may be followed on the needle of a meter used as a tuning indicator, for the weaker the signal strength the greater the meter reading. In fact, it will often be found that the needle fluctuates greatly without there being any audible indication of fading, such as would be found in an uncontrolled receiver.



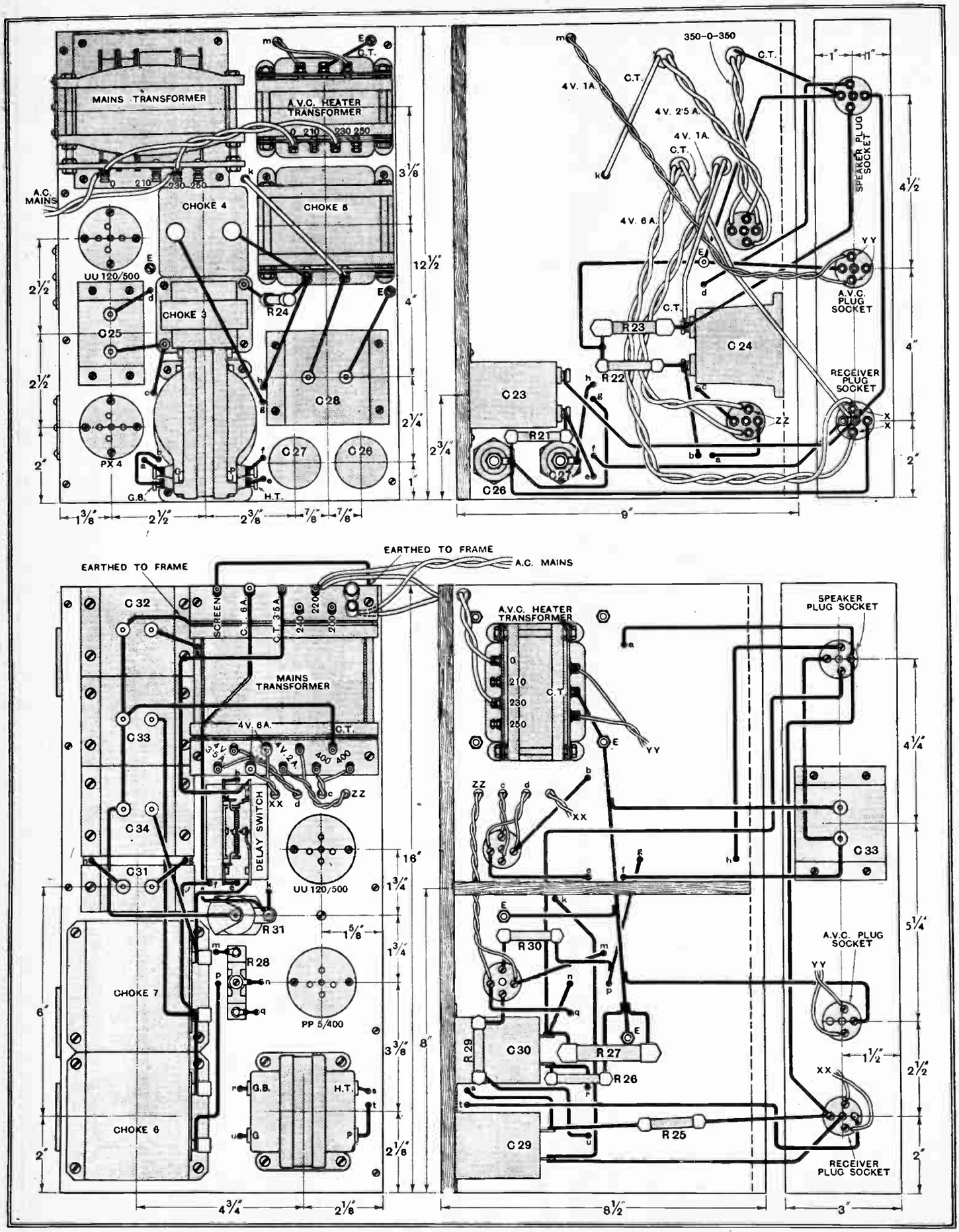
The under-baseboard wiring of the receiver unit.

Avoiding Hum

A few words about valve types may be of interest. It is recommended that the V.M.S.4 be employed for the three variable-mu stages, and the 164v. or M.H.L.4 for the oscillator, although here it is often permissible to employ the 354v., M.H.4., or AC/HL as an alternative. The second detector can be a 354v., M.H.4, or AC/HL without affecting the results, but if the specified resistance values are to hold, it is important that the A.V.C. valve be a 354v. If the M.H.4 or AC/HL valves be used instead, it will probably be necessary to change the value of R13, determining the optimum value experimentally, since the current cut-off points of the valves are slightly different.

For the tone corrector, it is recommended that in most cases the M.H.L.4 be used. The exception is where the gramophone pick-up gives only a moderate output, and then the 354v., M.H.4, or AC/HL should be used without changing any circuit values. The amplification with these latter valves is nearly double, and as a result there is a greater

ALTERNATIVE MONODIAL POWER UNITS

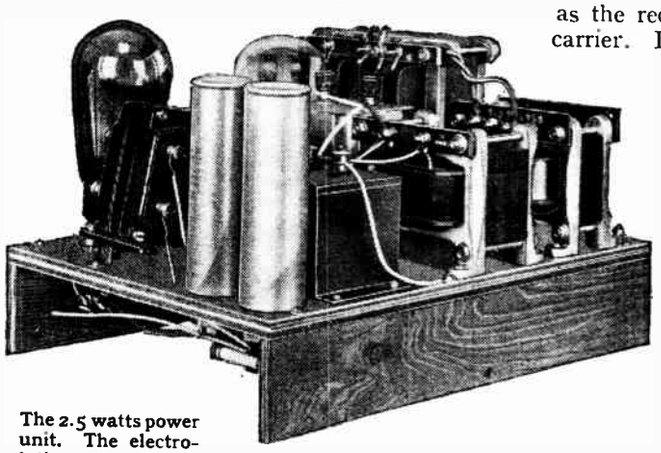


Practical wiring of the 2.5 watts (above) and the 5 watts (below) power chassis modified for A.V.C.

Adding A.V.C. to the Monodial

risk of hum, but no trouble from this was found in the experimental model. Little latitude is permissible in the power unit valves.

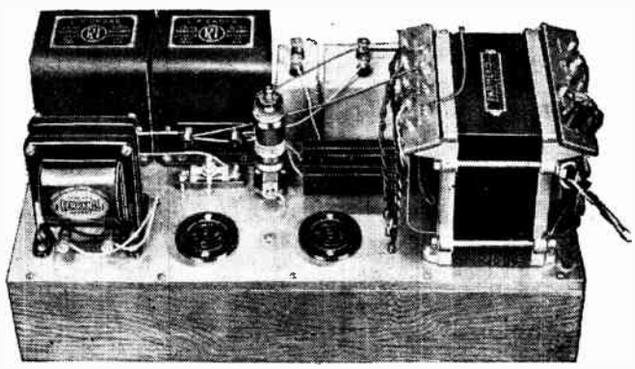
There is just one point in connection with A.V.C. which is worthy of mention. The level at which the second detector input is held depends upon the capacity of C17. If an incorrect value condenser be used at this point, therefore, or if the component be widely different from its rated value, the second detector input will be held at the wrong level. If it be found, therefore, that on all signals the second detector is overloaded, the probability is that C17 has too large a capacity. Conversely, if C17 be too small, the detector output will not be great enough for full volume. Any adjustment should be carried out on the local station, and the value selected should be such that on the strongest station the second detector is just not overloaded.



The 2.5 watts power unit. The electrolytic condensers can be seen in the foreground and the tilted transformer on the left.

One result of fitting A.V.C. to the Monodial is to make the tuning appear flatter. It is not actually so, of course, for all the fundamental characteristics of sensitivity, selectivity and quality are unaltered. The effect is found in all A.V.C. sets, and is due to the rise in sensitivity as the receiver is mis-tuned from a carrier. It is, therefore, more difficult to tune the set accurately to resonance by ear, and it is usually necessary to tune, not for the loudest signals, but for the deepest quality of reproduction. There is no real difficulty in this, and the knack is soon learnt, but there is no doubt that a tuning indicator is a great help, and where the additional cost is not objected to, it is recommended that a meter be permanently wired in the I.F. cathode circuit for this purpose.

A specimen receiver, with its alternative amplifiers, is available for inspection at 116/117, Fleet Street, London, E.C.4.



The 5-watts power unit showing the thermal-delay switch.

Full-size blue prints of this receiver, with the 2.5 watt or the 5 watt amplifier, are available from the publishers at 2/-, post free. When ordering state which amplifier is required.

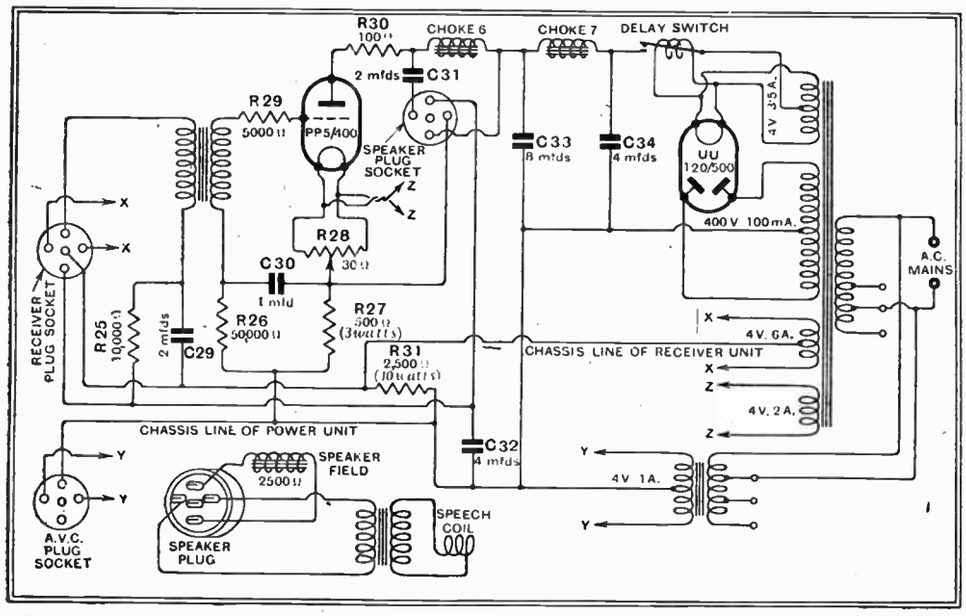


Fig. 3.—The complete circuit diagram of the modified 5-watts power chassis.

A Guide to Applied Voltages and Currents.

Valve.	Anode Volts.	Screen Volts.	Grid Volts.	Anode Current.	Screen Current.
H.F. V.M.S.4..	210	74	1.6	7.4	0.6
1st Det. V.M.S.4..	210	74	8.5	2.6	0.8
Osc. M.H.L.4..	96	—	3.6	3.8	—
I.F. V.M.S.4..	210	74	1.6	7.4	0.6
2nd Det. M.H.4....	136	—	—	7	—
A.V.C. 354v.	140	—	16	0	—
Tone Corr. M.H.L.4..	144	—	4.8	5.2	—
2.5 Watts Power Chassis.					
Output P.X.4 ...	298	—	37	50.5	—
5 Watts Power Chassis.					
Output P.P.5/400.	440	—	35	61	—

The above figures do not necessarily represent actual voltages, but measured values from the chassis with a 1,000 ohms per volt meter. They were taken with no signal input, so that the currents are maximum values. The mains voltage at the time of testing was 230 volts, and was connected to the 220/230 volts tapping on the transformer.

CLUB NEWS

Captain Eckersley on Free Speech

LIVELY remarks on broadcasting were made by Captain P. P. Eckersley, former Chief Engineer of the B.B.C., at a recent meeting of the Southend-on-Sea and District Radio Society. Captain Eckersley favoured free speech in broadcasting. He suggested that one set of our stations, say the Nationals, should remain as at present, while the Regionals adopted the American principle of free speech.

Hon. Secretary: Mr. Fred Waller, 49, Fermoy Road, Thorpe Bay, Essex.

Short Wave Reception in Public

MR. HALL, of Messrs. Philips Lamps, Ltd., recently surprised a public meeting of the Southall Radio Society with short-wave reception from such transmitters as Moscow, Drummondville (Canada), Rocky Point, and a station in Java. The lecturer explained the autodyne circuit used in Messrs. Philips' short-wave converter.

Hon. Secretary: Mr. H. C. Rayner, 114, North Road, Southall, Middlesex.

Loud Speaker Characteristics

THE Shotts (Lanarkshire) and District Radio Society is enjoying a successful season. Recent demonstrations by the General Electric Co., Ltd., and the British Thomson-Houston Company have aroused great interest. Mr. Cameron, of the G.E.C., demonstrated loud speaker characteristics on March 21st.

Hon. Secretary: Mr. E. M. Thomson, Cwmbach, Shotts.

Glow Discharge Relays

A DEMONSTRATION of glow discharge relays was given before the Woodford and Leytonstone Radio Society on February 16th, Mr. Nixon, of the G.E.C., displaying the new GT1. He first described the GV1 rectifier from which this relay had been developed, proceeding to demonstrate the various applications of the gas-filled relay which, in conjunction with an Osram photo-electric cell, gave a fine control of a small electric motor by varying light values.

Hon. Secretaries: Mr. H. O. Crisp, 2, Ramsey Road, London, E.7, and Mr. W. H. Crown, 1, Thornton Road, London, E.11.

UNBIASED

By

FREE GRID

You have only to listen.

'Phones for Film Fans

I WAS present the other day at the opening performance at an entirely new cinema in a well-known town in the West of England. It was the most up-to-date place of its kind that I have ever seen, and truly elaborate precautions had been taken to make the acoustic properties of the place as perfect as possible.

This was accomplished by the employment of "hollow walls" behind the usual exotic mural decorations. Heavy curtains mounted on rollers after the fashion of the ordinary roller-blind were let down into the "walls" when the place was fairly empty. There were several of these rolled-up curtains, more or fewer of which were used according to the number of people in the house. In this manner it was proposed to keep the acoustic conditions of the building the same, irrespective of the number of the audience.

Unrestrained emotion.

Such arrangements must, I think, be extremely expensive, and, at any rate, many years must pass before all the silent cinema palaces with their poor acoustic properties are demolished in favour of more modern buildings. I do not, however, see the slightest need for us to suffer from poor acoustics during the interim, and cannot for the life of me see why a pair of headphones complete with volume control and fed from the main amplifier cannot be hung at the back of each seat for those who desire to use them.

Apart from anything else, these headphones would be an immense boon to those who have the misfortune to be hard of hearing. Although I am not a great talkie patron, I would gladly welcome them, but in my case to shut out the conversation (?) and unrestrained emotion of the pestiferous females who seem to haunt these palaces of pleasure all day and every day.

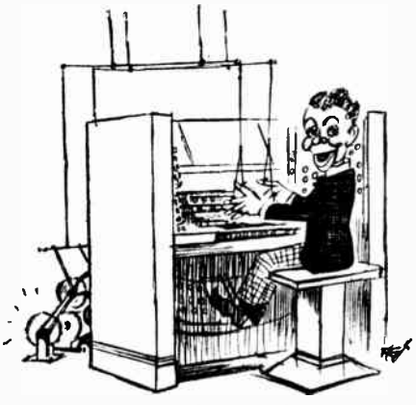
Horrible and Blatant

I WAS interested to see a picture in *The Wireless World* the other week of a so-called electric violin in which the strings vibrate in front of the poles of electric magnets, their energy being thus conveyed electrically *via* an amplifier to a loud speaker. It will be remembered that a correspondent questioned me about the feasibility of this scheme some twelve months ago (March 23rd, 1932), and I pointed out that it would be an excellent idea if it were not for the fact that feline viscera were not made of a magnetic substance.

One way to accomplish the trick would be to use steel strings, though, to my ears, nothing else can sound quite so horrible and blatant as a violin with strings of this sort. To appreciate this fully you have only to listen to the ghastly screechings of the violin wielded by the leader of the average restaurant orchestra. I believe that these individuals die young, worn out by the perpetual effort to make themselves heard above the din of the rest of the orchestra. They certainly succeed.

Curious Organs

THE enormous development of radio and its by-products during the past decade has been responsible for the employment of a very large number of people, but, on the other hand, it must be a matter of regret that its principal by-product, the talkies, has resulted in so many cinema musicians losing their employment. In fact, the only survivor is the ubiquitous organist, and now even he appears to be in grave danger. Indeed, he has already been replaced by a "dummy" in certain cinemas on the Continent, as I discovered recently when I dropped into a picture house with a Teutonic friend on my way home from the East.



Is it coming to this?

We found ourselves in close proximity to the organ console (the console and the immaculately marcelled organist being picked out by coloured flood lights; it was this fact that first drew my attention to the movement of the "organist's" hands).

While I don't profess to be a highbrow musician, it happened that the air that the organ was bleating out was one which even I can knock off, and it did not take me long to see that his hands were playing several wrong notes, and yet, *mirabile dictu*, the organ behind the grille on our right gave no sign of this. More marvellous still, the player at times was not even in synchrony with the music, and his feet appeared to be doing an aimless stroll over the pedals.

My friend, laughing at my surprise, explained the phenomenon was a familiar one. Many cinema proprietors over there, it seems, have found it far cheaper to dismiss the organist and replace the hidden pipes by banks of loud speakers. The music is derived *via* the main talkie amplifier by simply running a "music only" film through the ordinary projector in the operating room. The console is, of course, merely a dummy, and so indeed is the organist, who is usually drawn from the ranks of unskilled labour and provided with a marcel wave and a manicure.

"Valves"

IT is well known that up till fairly recently wireless manufacturers and dealers have been describing the 1-v-1 type of A.C. set with its valve rectifier as a three-valve receiver, and have patiently explained to the enquiring layman the reason why they didn't call it a four-valve set when it obviously had four valves in it. Tiring of such explanations, these much-harassed gentry have latterly let the non-technical public have it their own way, and they now label such an instrument a four-valve set.

According to a letter which I received from a well-known dealer of my acquaintance an entirely new menace has now arisen to disturb their peace of mind in this matter, namely, the vacuum type of thermal-delay switch. This thing has, of course, four legs for fitting into the usual valve holder, and it is exactly the same shape as a valve. The fact that the electrodes don't look like those of a valve, however, simply doesn't wash with the uninitiated, according to my correspondent, as they insist on calling it a valve.

The curious part is that the public have never regarded the ordinary metal rectifier as a valve, although, of course, it actually is one, and, now that they have got something which is definitely not a valve, they insist on calling it one.

BROADCAST

By Our Special Correspondent

The New Organ

IF we hear the first chords on the new organ in Broadcasting House within the next six weeks I shall be surprised. Although most of the pipes have been assembled behind that mysterious-looking grille in the Concert Hall, and the console is in position, the final voicing of the pipes has got to be carried out—a task which will keep the builders busy for quite a long time.

An Official Organist?

Several famous organists are to be asked to give recitals, and among them will certainly be Sir Walter Alcock, organist of Salisbury Cathedral, who prepared the specification.

Whether there will be an official appointment of an "Organist to the B.B.C." is still doubtful; the feeling in Broadcasting House is that the holder of such a post should be Mr. Berkeley Mason, who so frequently plays the Queen's Hall organ at the "Proms" and other B.B.C. concerts.

Famous Foreigners

The B.B.C. will take special pride in the new organ, as it will enable them to invite celebrated foreign executants, such as Marcel Dupré and Gunther Ramin, to broadcast recitals on a fine instrument without the necessity of seeking one outside the Corporation premises.

Why Not?

Given the organ, there will be very few items which the B.B.C. cannot stage within the portals of Broadcasting House, from a cathedral service in the Concert Hall to an after-dinner speech in the canteen.

Football matches could be held on the roof, while the debates studio is always available for prize fights. All that the B.B.C. lacks is a cinema organ.

What about it, Dr. Boult?

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Saying It With Silver

IF you guessed that the note of unusual felicity in Henry Hall's voice during the anniversary broadcast last week was traceable to the fact that the "boys" had unexpectedly presented their leader with a silver dessert service, complete with bowl, nut-cracking implements, and bonbons, you were right.

Two hours before the broadcast Mr. Hall was switched over in person to the Langham Hotel, where the presentation took place amid appropriately festive surroundings.

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Have You Heard West Regional?

THE new West Regional transmitter can already be heard testing o' nights, and early next month public reception tests will begin. The wavelength is, of course, 309.9 metres, the old Cardiff wavelength, which will be permanently allocated to West Regional.

Both transmitters, Regional and National, will be faded in in the same manner as their predecessors.

That Belfast Site

Never before has the B.B.C. been so lucky as to have a choice of four entirely suitable sites for a new Regional station. This is the case at Belfast, for, besides the Craigantlet site, to which I was able to give first exclusive mention a fortnight ago, three other localities have been tested and not found wanting. I fancy, however, that Craigantlet will be the final choice.

THE FINISHING TOUCH. A *Wireless World* photograph of the striking and much-discussed group of statuary over the main entrance to Broadcasting House. The work, which has been executed by Mr. Eric Gill, represents Ariel and Prospero in "The Tempest." It was first exposed to public gaze on March 14th.

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Innovation

THERE are artistes to be found in nearly all categories who made their public *début* before the broadcast microphone, but I fancy that Madame Adeline Genée must be the first to give the world good-bye through the same medium, as she did in the television programme on March 15th. Certainly no one has ever before said farewell by television.

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News About News

I AM glad they propose finding a news editor for the Athlone station. The news bulletins have seemed the least attractive feature of the new Irish transmissions.

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New Dance Record

CONGRATULATIONS to Ambrose. On Saturday last his versatile dance band completed five years of uninterrupted broadcasting on Saturday nights from the May Fair Hotel. I believe this is the longest period any band has broadcast.

BREVITIES

Chiefs of Information

MR. VAL. H. GOLDSMITH, who is deputising for Major Gladstone Murray as B.B.C. Information Chief during the latter's absence in Canada, is an Assistant Controller of the Corporation and virtually Secretary. Like Major Murray, he has never sought the limelight and is not known, even as a name, to the world of listeners.

Will Major Murray Return?

Officials at Broadcasting House deny that Major Murray will make the Canadian appointment a permanent one. Ostensibly his mission is simply to advise on the reorganisation of Canadian broadcasting on B.B.C. lines, but it will surprise many of his friends over here if the Canadians drop the pilot in a hurry.

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The Churchill Speech

WILL Mr. Winston Churchill broadcast from the Connaught Rooms on April 24th? The occasion is the dinner of the Royal Society of St. George.

There seems to be some doubt even now as to whether the statesman, who has more than once crossed swords with the B.B.C., will be permitted an extempore broadcast from a place beyond the reach of the Corporation's schoolmasterly hand.

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On Good Friday

THE B.B.C. will on April 14th follow the accepted custom by again relaying extracts from *Parsifal*, to be given by the B.B.C. Symphony Orchestra in the Queen's Hall. The soloists will be Oda Slobodskaya, Walter Widdop, Harold Williams, and Horace Stevens. As usual, Sir Henry Wood will conduct.

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Time is Money

THE people who are pleading for a B.B.C. time signal at 7.30 or 8 a.m. may or may not have considered that the innovation would cost a lot of money. It would mean starting up the transmitters at least two hours earlier than at present.

Listeners, of course, may opine that no expenditure is wasted on a loyal public of more than five million licence holders.

Pity the Poor Engineers

It is not, I believe, the expense which worries the B.B.C., but the fact that any extension of the engineers' hours would involve an extra shift. At present the engineers' day lasts approximately fifteen hours, from 9 a.m. to 12 midnight, and this period can be comfortably split up into two shifts.

An earlier start, however, would apparently introduce complications immediately; all work and no play would make dull dogs even of the engineers, who are gay fellows as a class, despite present discontents over the salary question.

A Crumb of Comfort

The other day one of the senior engineers showed a titled lady over the Control Room. When the tour was finished the visitor pleasantly asked how long her guide had been on the engineers' staff.

"Seven years," he answered, not without pride.

"Fancy that!" was the rejoinder. "Never mind; you'll be promoted soon."

The Editor does not hold himself responsible for the opinions of his correspondents.

Correspondence should be addressed to the Editor, "The Wireless World," Dorset House, Tudor Street, E.C.4, and must be accompanied by the writer's name and address.

Empire Listeners and the Blattnerphone

I HAVE read with interest an item under the title "Empire Revolt" in Broadcast Brevities of your number dated December 30, 1932. It may perhaps be rather late at this time to pass any comments, but I must say I cannot agree with the view expressed.

It has been my experience, and others have told me they have made the same observations, that speech via Blattnerphone process is not as clear as speech given direct. The difference is noticeable, and I may say that if atmospheric conditions are none too good the difference may make the programme practically unintelligible.

Reception at four or five thousand miles may be quite good at times, but when it is not good then the Blattnerphone does not improve matters. J. A. MOORE.

Penang, Straits Settlements.

[Our Broadcasting correspondent, commenting on the use of the Blattnerphone for Empire broadcasting, wrote: "Reception is not so pure and clear-cut at two or three thousand miles that a listener can detect whether the programme is first hand or not." We fail to see what alternative method the B.B.C. can adopt for transmission outside normal broadcasting hours in this country. —ED.]

"Broadcast Headlines"

I SHOULD like to disagree with your proposal in a recent leader.

In the broadcast news bulletin, there are many items which, while being of great interest to some people, are considered to be of little importance by others. I imagine that announcers vary in their opinions as much as the rest of us, and I think that many listeners would be annoyed if it were the practice of announcers to give special emphasis to those items which happened to strike them personally as the most important. L. F. ISAAC.

Harpenden, Herts.

What Does the Public Want?

MAY I relate, in brief, my experience as a radio dealer and service engineer regarding "What Does the Public Want"? A few months ago I stocked up with ultra-short-wave components and adaptors in response to the publicity given by large manufacturers and by the technical Press. I did all in my power to interest people in this comparatively new side of radio reception. Maybe I was too truthful about it, but now I find that my energy was more or less wasted. In those few cases where I did succeed in selling a short-wave set or adaptor I find that the interest very soon fell off. Other radio dealers tell me the same story. In this field, it appears, there seems to be a great amount of truth in your correspondent's letter, signed "Diagnostic."

Carluke, Scotland. JAMES FRAME.

The Ferrocart III

SOME time in November last I communicated with you about a three-valve A.C. wireless set, and you were kind enough to advise me to be patient for a little while as you were bringing out something extra good, and I now write to thank you for your advice as, having waited for the "Ferrocart III," I feel more than repaid for my patience.

I have now, I think, completed all adjustments and feel I should like to let you know how superlatively good I find the result; sensitivity is, if anything, better than I anticipated from your own comments, and selectivity is, as you say, surpassed only by a good Super-Heterodyne, and the quality leaves nothing to be desired at all. It will give me great pleasure to demonstrate to a number of doubting acquaintances that it *is* possible to listen to foreign stations with a reasonably quiet background, and at a suitable volume.

One last word about the performance. My flat is in Earl's Court, and I have always considered that I am, if anything, slightly more masked than is usual even in London. I put this down, possibly quite incorrectly, to being immediately between Earl's Court Station and Olympia. My "Ferrocart III" set, however, does not appear to take any notice of what I previously regarded as an obstruction, and I was somewhat astonished last night to hear Juan-les-Pins, reputedly operating on .8 kW., announced so loud that it was necessary to turn it down quite considerably on the volume control. This was followed a short time later by San Sebastian.

There is no doubt in my opinion that you have once again set a standard.

G. LESLIE CROSLAND.

London, S.W.5.

PORTABLE RADIOGRAM. The novel feature in the Schaub radiogram exhibited at the Leipzic Fair is the incorporation of a nearly vertical turntable. The photograph shows the instrument in the playing position.

Automatic Volume Control

I NOTICE that Mr. Scroggie is again (in your issue of March 10th) criticising the use of the term "Automatic Volume Control," on the ground that what is actually varied is the "gain"—i.e., the amplification. But surely this is just what the ordinary volume control does, whether it effects this by varying the grid bias or the screen volts, and yet Mr. Scroggie seems to take no exception to the use of the term "*volume* control" in this case. Further, he states that "volume control is used to vary the volume," as opposed to an A.V.C. whose function is "to keep the volume constant." Here I take issue with him. The ordinary listener uses his volume control to do exactly what an A.V.C. does, i.e., to maintain the volume from his loud speaker at what, in his room and to his ear, is the correct volume, whether he is listening to a distant station or the local, and whether the station is on the crest or in the trough of a fade. Admittedly it is also used to increase the volume for dancing or to decrease it when the baby is going off to sleep, but that is not its normal function. If in the dim future we devise an A.V.C. which automatically reduces volume when the baby is being put to sleep, will Mr. Scroggie then acquiesce in the use of the word "volume," or will he insist on some such name as Automatic Gain and Volume control? Surely we control volume equally by keeping it where it is as by increasing or decreasing it, and so long as we have such a straightforward, obvious and self-explanatory term as "Automatic Volume Control" for goodness sake let us stick to it.

Edinburgh. J. S. BISSET.

Practical HINTS AND TIPS

AIDS TO BETTER RECEPTION

NO wireless constructor should regard his outfit as complete unless it includes one or two medium-sized soft camel-hair brushes such as can be bought for a few pence. The hairs must be mounted in quill, celluloid, or other non-conducting material, and the handle made of wood and tapered at the end.

A Handy Accessory

Innumerable uses can be found for these handy little brushes. Dust and grits, for instance, which collect with alarming rapidity on all exposed surfaces and may eventually cause loss of signal strength and selectivity. will cling readily to the soft hairs, and can then be transferred to a soft duster without the slightest danger of short-circuits or displacing the internal wiring.

By holding the brush at the "wrong end," the handle is invaluable for retrieving nuts and terminal heads which have an uncanny habit of dropping out of reach into the "works" while adjustments to internal wiring are being made. All that is necessary to save time and temper is to use the brush to manœuvre the loose nut into a convenient upright position, jab the tapered end of the brush firmly into its middle, and pull it out. When the time comes to replace it on the terminal shank, there it is, conveniently stuck on the end of the brush handle, ready to be screwed back into position in a few seconds, the handle being eventually released as the nut is screwed down on to the terminal shank and the connection finally tightened with a pair of pliers.

THE Power Radio-Gram. (*Wireless World*, January 27th and Feb. 3rd, 1932) is admirably suited for high-quality reception of the local stations; in fact, it was designed expressly and solely for this purpose. No H.F. amplification was included in the original receiver.

An H.F. Stage for the Power Radio-Gram.

Probably a number of readers are now desirous of using the receiver at greater ranges than was originally anticipated, or, through some local restriction, they are unable to erect an aerial of efficient type. In cases such as these the benefits of a stage of variable-mu H.F. amplification are considerable, and, further, it will enable a number of the more powerful Continental stations to be received.

Usually the addition of an H.F. stage to an existing receiver is a matter fraught with considerable difficulty, but the problem is greatly simplified by the adoption of a Radiopak unit. The arrangement suggested for such an addition is shown in Fig. 2, and, beyond the Radiopak, only a few components are necessary. The by-pass condensers should be of the non-inductive type, and, except where otherwise indicated, the fixed resistances can be of 1 watt rating.

Some care should be exercised in the disposition of components, and it is recommended that the parts shown in Fig. 1 should all be built together as a unit, and the output joined to the input of the L.F. amplifier. This is likely to prove more satisfactory than an arrangement which keeps to the existing layout for the detector stage components. The reference numbers on the circuit diagram, it should be noted, refer to the original components of the Power Radio-Gram.

No difficulty should be met with in the power supply, since the existing equipment is quite capable of meeting the small extra demands upon it without any serious drop in voltage. Since the H.F. valve anode current varies greatly with the volume control setting, however, it is necessary to use ganged potentiometers in order to prevent an excessive rise in anode voltage at low volume settings. The sliders of the potentiometers should be arranged so that they move together in the manner indicated on the circuit; that is to say, so that they are both at the earth ends together.

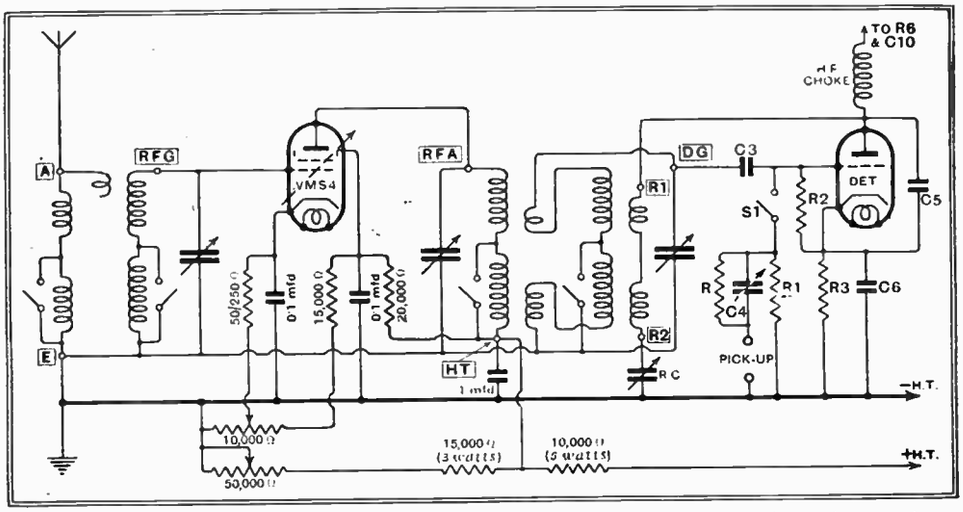


Fig. 1.—Adding an H.F. stage to the Power Radio-Gram. "Boxed" lettering refers to the terminals of the "Radiopak" unit.

The minimum bias resistance of the H.F. valve can be varied between 50 ohms and 250 ohms. Where only moderate amplification is needed the latter value can be used, and there should then be little risk of instability. Greater amplification will be with a 50-ohm limiting resistance, however, but more care must then be taken with the layout of components if instability troubles are to be avoided.

MANY sets, unknown to their owners, are operating with a detector valve in an almost chronically overloaded condition. In other words, the detector is being worked in such a way that the maximum undistorted output obtainable from it is insufficient to load the output valve. Distortion introduced in this way is insidious, for the reason that it is of a type to which the ear soon becomes atrophied. The trouble is one to which receivers without an intermediate L.F. stage are particularly susceptible, and it is rather more likely to occur with a triode output valve than with a pentode.

Detector Overloading

The presence of detector overloading may be suspected when the set fails to respond readily to its sensitivity control—reaction, S.G. valve bias, etc.—after a certain point is reached. Signals that are initially very weak become stronger, but others, just below the intensity required for full output, do not respond to the control in the proper manner.

Apparent sharpness of tuning is also a good guide. If weak signals tune sharply, but strong ones, corresponding to approximately full volume, can be heard at the same strength over a much wider angular displacement of the tuning dial, it is reasonable to suspect that the detector is at fault.

Failing emission in a valve may be responsible for this trouble; if it is not an increase in detector H.T. voltage should be tried as a cure. If the maximum available H.T. voltage is already applied it may be possible to improve matters by reducing the value of the decoupling resistance; one often tends to be over-generous in these matters.

READERS' PROBLEMS

THESE columns are reserved for the publication of matter of general interest arising out of problems submitted by our readers. Readers requiring an individual reply to their technical questions by post are referred to "The Wireless World" Information Bureau, of which brief particulars, with the fee charged, are to be found at the foot of this page.

Anode Current Variations

A READER who is not quite satisfied with the behaviour of his receiver has noticed that the reading of a milliammeter, inserted in series with the anode of the detector valve, changes considerably as the pick-up volume control knob is rotated. A circuit diagram of the receiver is submitted, and we are asked to say whether these changes of anode current are indicative of a fault.

It seems just possible that the detector valve, when converted into an amplifier for gramophone reproduction, is being operated with insufficient negative bias. If grid current is flowing, a change in the grid circuit resistance, as brought about by rotation of the volume control, will produce a change in grid voltage, and so a corresponding variation in anode current will take place. A more likely explanation is that the detector valve is faulty; very probably it is "soft." A valve that is defective in this way will pass reversed grid current, and its effective grid potential will be altered by any variation of resistance in the grid circuit.

Due to the fact that the pick-up (see Fig. 1) is in shunt with the volume control

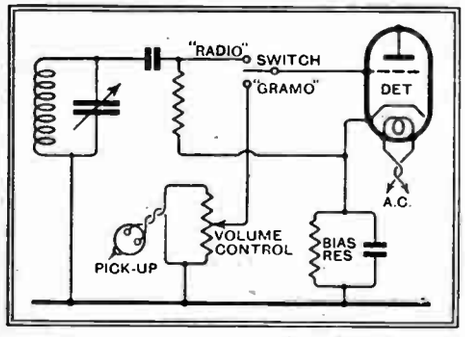


Fig. 1.—Operation of a pick-up potentiometer alters the amount of resistance in the grid circuit, and so, under incorrect conditions or with a faulty valve, may give rise to changes in anode current.

potentiometer, the variations in grid circuit resistance will be limited, but they may be quite sufficient to give rise to the effect under consideration.

The Trimming Condenser

IN all gang-controlled receivers it is natural that some of the circuits should tune more sharply than others, due to the fact that the amount of damping applied to each of them is apt to differ considerably. For instance, the grid circuit of an H.F. valve is usually lightly damped, and one would expect that the adjustment of the trimmer that controls this circuit would be comparatively sharp and well defined. But there is another aspect of the matter. The capacity change in a trimming condenser is by no means proportional to rotation of the adjusting screw. At low capacity settings, the change in capacity per turn is relatively small.

This, we think, accounts for the effect noticed by a correspondent, who is somewhat perturbed to find that H.F. grid circuit tuning is apparently not so sharp as he had expected. In asking our advice, he adds that the condenser in question is nearly "all out," and this, we think, helps to explain the matter.

A.V.C. with a Diode

A QUERIST, whose receiver includes a diode detector preceded by two H.F. stages, has realised that long-distance listening would be vastly more pleasant if some means of overcoming the effects of fading

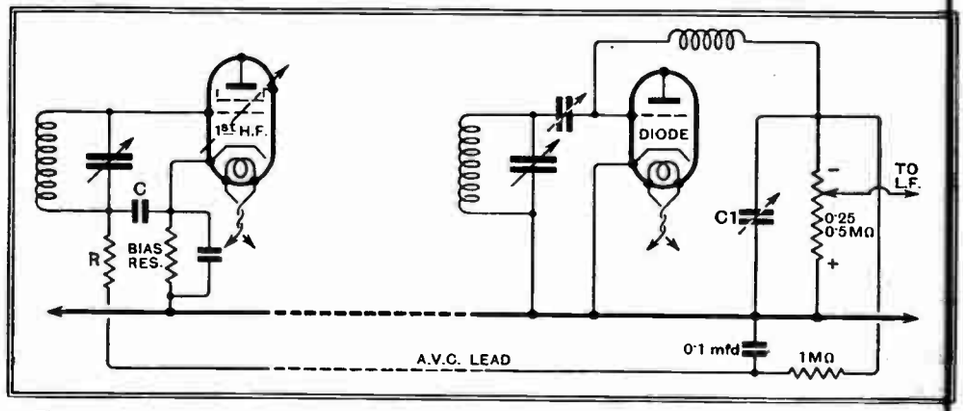


Fig. 2.—Automatic volume control is easy to apply to a "2-H.F." set with diode detection.

could be included. He asks us to suggest a simple way of fitting automatic volume control which will not necessitate any radical alterations in the receiver.

The fact that diode detection is included should simplify our correspondent's task, and it would appear that this receiver is particularly well suited for the addition of A.V.C. We suggest that he should adopt the circuit arrangement given in Fig. 2, and that the first H.F. valve only should be controlled.

Referring to our diagram, R and C represent the decoupling resistance and condenser, which we presume will already be included in the H.F. valve grid circuit. The condenser C1 is the by-pass capacity normally associated with the diode load resistance; it might be permissible to omit this condenser entirely if it is found necessary to shield the A.V.C. leads in order to maintain stability. The capacity of screened leads would replace that of the condenser.

An experimental alteration in the value of the existing decoupling resistance R should be tried if the automatic control is found to act too slowly or too quickly. Apart from this, an abnormally high resistance may be necessary to prevent instability.

High-magnification Valves

ALTHOUGH he is quite satisfied with the performance of his H.F.-det.-L.F. A.C. receiver, a querist asks if its sensitivity could be improved to any appreciable extent by replacing the present detector valve by another having a much higher magnification factor; the A.C. resistance of the new valve is somewhat higher than that of the existing detector, and its mutual conductance about the same.

Our reader's set is controlled by a ganged condenser, and we think it likely that, as a result of making the proposed substitution he may find that the stray capacity across the detector grid circuit will become excessive; this is because the input capacity of the valve he thinks of using is high. Otherwise there is no great objection to the change, but we are inclined to think that the result of making it will be disappointing.

Resistance-coupled Amplifiers

WHEN anything goes wrong in a resistance-coupled amplifier, one is always inclined to suspect either the coupling condensers or the grid leaks. A correspondent tells us that his receiver, which includes this form of L.F. amplification, has worked well for some time, but of late quality has deteriorated; reproduction has become unpleasantly shrill, low notes are entirely lacking, and the general volume level is greatly reduced.

This effect would be readily accounted for by the development of an internal disconnection in one of the coupling condensers—a fault that, though rare, is by no means unknown. If this fault exists, impulses would be transferred to the succeeding circuit only by virtue of stray capacity, and this capacity would have such a low value that the lower audible frequencies would not be passed on to any appreciable extent.

The Wireless World INFORMATION BUREAU

THE service is intended primarily for readers meeting with difficulties in the construction, adjustment, operation, or maintenance of wireless receivers described in *The Wireless World*, or those of commercial design which from time to time are reviewed in the pages of *The Wireless World*. Every endeavour will be made to deal with queries on all wireless matters, provided that they are of such a nature that they can be dealt with satisfactorily in a letter.

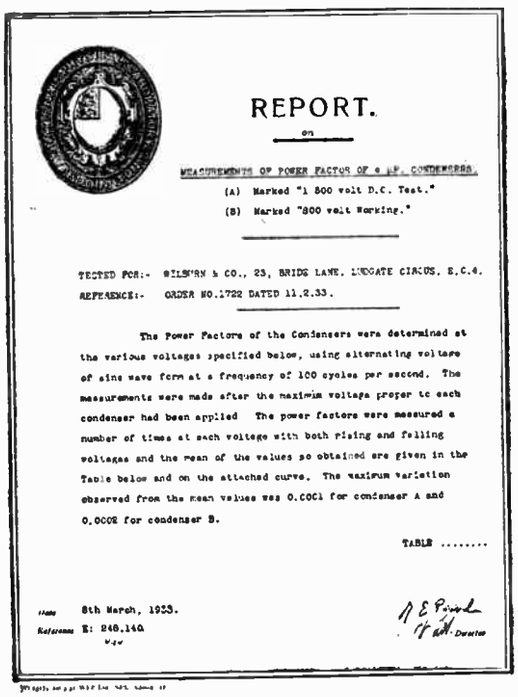
Communications should be addressed to *The Wireless World* Information Bureau, Dorset House, Tudor Street, E.C.4, and must be accompanied by a remittance of 5s. to cover the cost of the service. The enquirer's name and address should be written in block letters at the top of all communications.

NATIONAL PHYSICAL LABORATORY'S REPORT ON

PEAK CONDENSERS

SPECIFIED FOR THE A.V.C. MONODIAL

Power Factor is a measure of the goodness of a Condenser. Wilburn & Co., lead by publishing the following significant figures.



REPORT.

on

MEASUREMENTS OF POWER FACTOR OF 4 μF. CONDENSERS.

(A) Marked "1 500 volt D.C. Test."

(B) Marked "800 volt Working."

TESTED FOR:- WILBURN & CO., 23, BRIDE LANE, LUDGATE CIRCUS, E.C.4.

REFERENCE:- ORDER NO.1722 DATED 11.2.33.

The Power Factors of the Condensers were determined at the various voltages specified below, using alternating voltage of sine wave form at a frequency of 100 cycles per second. The measurements were made after the maximum voltage proper to each condenser had been applied. The power factors were measured a number of times at each voltage with both rising and falling voltages and the mean of the values so obtained are given in the Table below and on the attached curve. The maximum variation observed from the mean values was 0.0001 for condenser A and 0.0002 for condenser B.

TABLE .....

Date 8th March, 1933.

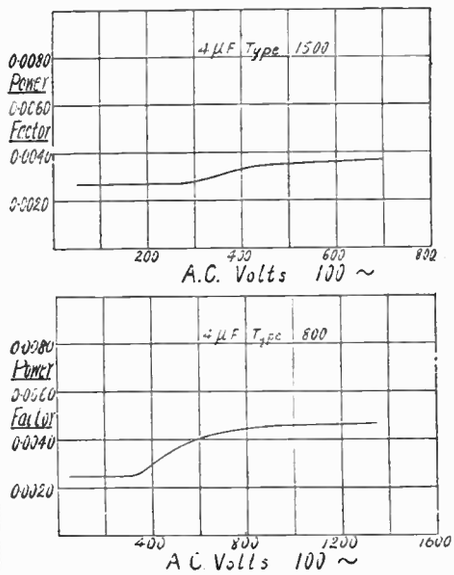
Reference E: 248.140

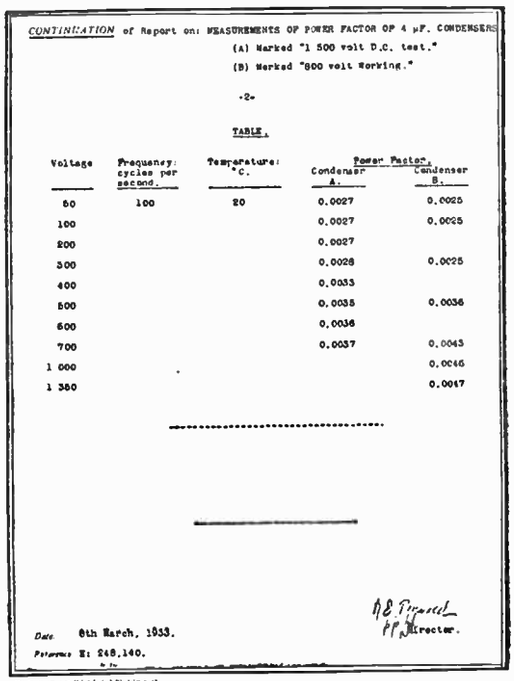
Write for Lists.

Curves plotted from adjoining figures

Condenser A :: 4 mfd Type 1500

Condenser B :: 4 mfd Type 800





CONTINUATION of Report on: MEASUREMENTS OF POWER FACTOR OF 4 μF. CONDENSERS

(A) Marked "1 500 volt D.C. test."

(B) Marked "800 volt Working."

-2-

TABLE.

Voltage	Frequency: cycles per second.	Temperature: °C.	Power Factor. Condenser A.	Power Factor. Condenser B.
50	100	20	0.0027	0.0025
100			0.0027	0.0025
200			0.0027	
300			0.0028	0.0025
400			0.0033	
500			0.0035	0.0036
600			0.0036	
700			0.0037	0.0043
1 000				0.0046
1 350				0.0047

Date 8th March, 1933.

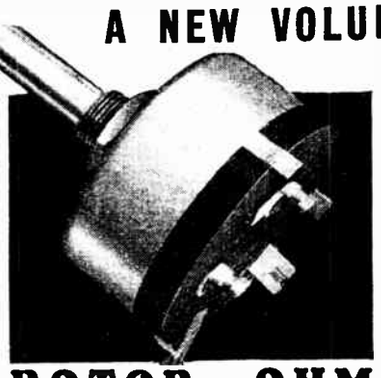
Reference E: 248.140.

WILBURN & Co. 21 & 23, Bride Lane, London, E.C.4. Telephone - - - - - - - - Central 6994.

Northern Distributors: W. Andrew Bryce & Co., Bury, Lancs.

Export Agent: W. R. Everett, 63, Queen Victoria St., E.C.4.

A NEW VOLUME CONTROL



Of course there are plenty of other volume controls, but that fact in itself is proof that the new Rotor Ohm *must* be good. It would not have been marketed unless we were *sure* that it was better than anything else. Try one and see for yourself.

Wirewound. 2,000 ohms to 25,000 ohms, 3/6; with switch, 4/6. 50,000 ohms, 4/-; with switch, 5/-.

Synthetic. 2,000 ohms to 5 megohms, 3/6; with switch, 4/6.

Ganging 9d. a unit extra.

"Manufactured in the British Commonwealth, produced in Engla.d."

ROTOR OHM VOLUME CONTROL

Rotor Electric Ltd.,
Spencer House, South Place, E.C.2.

Telephone: National 5734.

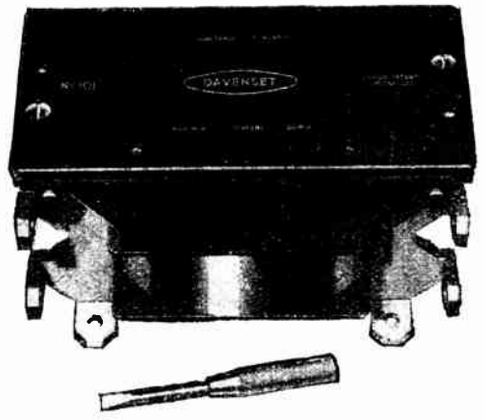


Illustration shows the Davenset List No. 101 smoothing choke Inductance 30 Henrys at 50 Ma. List Price 18/6 complete with instrument screwdriver as illustrated.

Ensure the success of your set with

DAVENSET TRANSFORMERS

THE 'Wireless World" Laboratory has tested DAVENSET Transformers and finds them "well above the average in performance and exceptionally well made." Such unbiased judgment is the best guarantee to home set constructors, and others, that DAVENSET Transformers will make a material contribution to the success of their sets.

WRITE FOR a copy of "Mains Transformers and Power Smoothing Chokes for Radio and Industrial Purposes."

Davenset Transformers are manufactured to your own individual requirements, whilst our Technical Department is at your service to advise and suggest the simplest and yet most practical schemes for overcoming your Transformer or Rectification problem.

PARTRIDGE, WILSON & CO.

Dept. 29, Davenset Works, Leicester.

Scottish Branch: 200, St. Vincent Street, Glasgow, C.2.

ENSURE A VASTLY IMPROVED RECEPTION!

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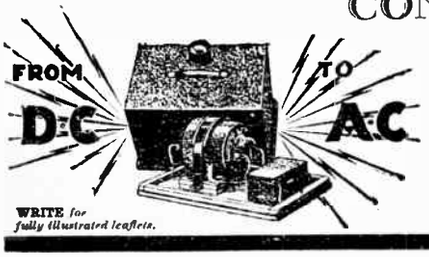
THE LEADING MACHINES ON THE MARKET



WRITE *for fully illustrated leaflets.*

FREE FROM INTERFERENCE, SUBSTANTIALLY mounted in sound-proof cabinet and equipped with highly efficient filter unit, the Electro Dynamic Converter enables any A.C. Receiver or Radiogram to be run off D.C. with Guaranteed Reliable Service.

ELECTRO DYNAMIC CONSTRUCTION CO. LTD.
DEVONSHIRE GROVE, LONDON, S.E.15
Telephone: NEW Cross 4972 (4 lines).

Advertisements for "The Wireless World" are only accepted from firms we believe to be thoroughly reliable.

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Each paragraph is charged separately and name and address must be counted.

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ADVERTISEMENTS for these columns are accepted up to **FIRST POST on MONDAY MORNING** (previous to date of issue) at the Head Offices of "The Wireless World," Dorset House, Tudor Street, London, E.C.4, or on **SATURDAY MORNING** at the Branch Offices, 19, Hertford Street, Coventry; Guildhall Buildings, Navigation Street, Birmingham, 2; 260, Deansgate, Manchester, 3; 26a, Renfield Street, Glasgow, C.2.

Advertisements that arrive too late for a particular issue will automatically be inserted in the following issue unless accompanied by instructions to the contrary. All advertisements in this section must be strictly prepaid.

The proprietors retain the right to refuse or withdraw advertisements at their discretion.

Postal Orders and Cheques sent in payment for advertisements should be made payable to ILIFFE & SONS Ltd., and crossed & Co. Notes being untraceable if lost in transit should not be sent as remittances.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

RECEIVERS FOR SALE.

AERO American 5-valve A.C. Midget Sets. 3 screen grid pentode output, with mains energised M.C. speaker, complete all valves, £5/10; also few ditto, require slight servicing, at £4/10 each; several other sets and chassis at bargain prices.—W. Burns and Co., 287, City Rd., London, E.C.1. Clerkenwell 4604. [2186

QUIESCENT Push-pull Two, complete 1/10 A.F.11(C) Ferranti, new valves, Amplion M.C.22, Q.P.P. batteries, exact specification; c.o.d. £7.—Box 6434, c/o *The Wireless World*. [2225

CLEARANCE Lines in Mains Receivers; stamp brings list—Wood's Radio, Holcombe Brook, near Bury. [2217

£4/10.—"W.W." single dial Super, less valves; D.C. Magnavox, 110/190V., 22/6.—"St. Clare," Altwood Bailey, Maidenhead. [2214

REGENTONE 2-valve A.C. Sets; list £6/15, £3/15, new, perfect.—62, Great Cambridge St., Shoreditch, London. [2213

A.C. Monodial, 5.9W. output, Rola speaker; £16/16.—7, Pond Rd., Blackheath, S.E.3. [2209

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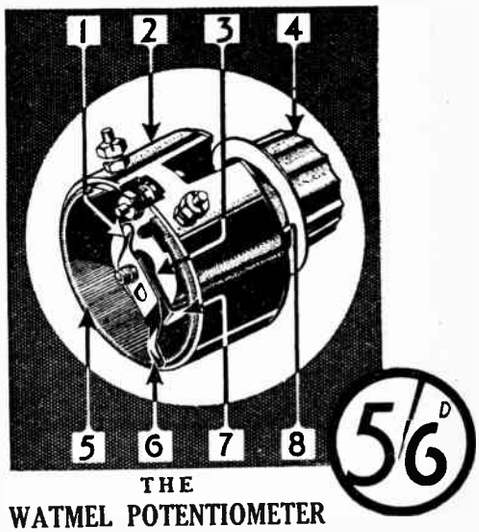

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M.L.4s, A.C.P.s, 41M.P.s, P.M.24s, 8/-; A.C.H.L.s, M.H.L.4s, A.C.2/H.L.s, 354V.s, 41M.H.L.s, U.10s, U.U.60/250s, M.H.4s, 7/6; P.T.2s, V.S.2s, 2158.G.s, 9/-; 442B.U.s, 8/6; D.C.3H.L.s, D.W.3s, 8/-.

ALL Types of Brand New American Valves in Stock; 247s, 235s, 224s, 236s, 237s, 12/- 227s, 242s, 226s, 280s, 245s, 232s, 10/6.

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ORIGINAL (N. and K.) Farrand Inductor Speaker, listed £3, price 30/-; Rola 49/6 model, permanent magnet, moving coil, 32/6; 2-volt Eta (H.F.) valves, new, 2/6.—Radio Supplies, 131, Lee Rd., Blackheath, London, S.E.3. [2246

A.F.7 Ferranti Transformer, J.B. 0.00004 Condenser, 6 Varley resistances and holders, all new; 17/6 lot.—124, Claremont Rd., Forest Gate. [2236

SINGLE DIAL Super Kit, 30/-; O.P.M.1C, 14/-; Parmeko-Hydra 500v. 120 m.a. unit, £6; wanted, O.P.M.6C.—70, Thornton Lane, Bradford [2237

H.T.11, 21/-; Polar Star 3-gang, 14/-; A.F.5, 15/-; Telsen 1.75/1, 5/6; K.G.C., 3/-.—Lupin Radio, 49, Clifton Rd., Liverpool, 6. [2240

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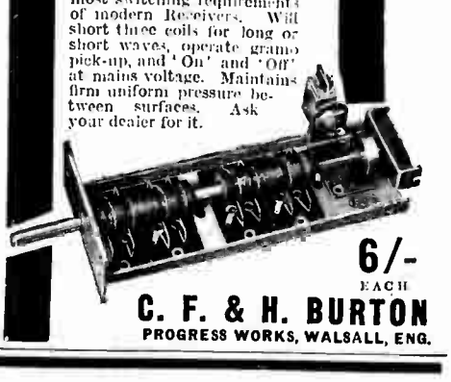

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ALL Goods Sold under Money Back Guarantee; valves tested before despatch; cash or c.o.d.; carriage paid over £2.

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L.F. Transformers.—Mullard Permacore, 5/6; Nicle 4/11; Nicore II, 6/6; Marconi Ideal, 4:1, 6/6; ditto, Popular, 3/6; Pilot, 3/11; R.I. 7:1, 5/6; Poto Premier, Stal, Formo, British General Triumph, R. Brunet, etc., 2/11; Pye latest, 6/6; Telsen Ace, 2/3; ditto, Grand, 3/3; B.T.H. 1:1, 2:1, 4:1, 4/6 each.

OUTPUT Transformers.—R.I. Pentamu, 9/11; O.P.4c, 9/11; B.T.H., 5/11; Marconi, universal type, 6/11.

RADIOPAKS, complete, as new; listed £3, £1/16/6.

COILS.—British General aerial tuners, 6/6; ditto, band pass units, aerial or anode types, 6/6; ditto, inter valve coils, 3/6; Colvern M.M.3 Star dual wave, 2/11; Bulgin multi coils, 2/11; T2R and R2R's, 3/11 each; T.G.S.C. and cans, 4/11; Lewcos, B.R.F., B.P.F./G.R., 6/6; T.O.S., G.R., 4/9; P.V.1, P.V.2, 6d.; D.B.A., 2/11.

6D. Each.—Dubilier toroids, 6-pin bases, 6 pin coils, plug in coils, variable condensers, 20ft. connecting wire.

DIALS.—Ready Radio, Telsen discs, 2/-; Ormond friction dials, 2/6; Burndept, Utility Microdials, 3/3; small Indigraphs, Ormond, Astra, etc., small types, 1/6.

METERS.—G.E.C., large type moving iron meter, 8in. dial, 0-250v., 12/6; portable meter, 0-300 volts, 12/6; switchboard, 0-10 volts, 6/6; Weston panel ammeter, 25-0-25, 5/-; Silam 3-range pocket type, 5/-.

PICK-UPS, etc.—Bluespot, latest, 63/- type, 28/6; Zonophone, 8/11, above boxed; B.T.H., gilt type, 16/6; Harlie, 32/6 type, 15/3; Marconi, old type, similar to Woodruffe, with transformer, 10/6; Apollo £5 universal D.C. or A.C. gramophone motors, new, boxed, £2/2.

VOLUME Controls.—Sovereign, R.I., etc., 50,000 ohms, etc., 2/6; Varley power potentiometers, 50,000 ohms and 10,000, 3/11; A.E.D. faders, 5/-.

WIRE-WOUND Resistors, Ferranti, Mullard, Varley, etc., 1/6; Spashettis, etc., 4d.; grid leaks, 3d.

VARIABLE Condensers.—Polar, Lotus, J.B., Formo, Ormond No. 4, etc., Lissen, 2/3; Formo, Ormond S.M. types, also Astra, etc., 3/3; J.B. tiny S.M., J.B. Popular Log S.M., G.E.C., S.M., etc., 4/6; G.E.C., Bakelite, 0.0005 with disc drive, 2/3; Read-rad, Brookmans condensers, 1/6; Presets, 9d.; differentials, various, from 1/6; neutralising condensers, 1/-; Polar Ideal, S.M. and J.B., with drum drives, 0.0005, only 4/6.

GANGED Condensers.—Polar Tub 2-gang, 8/6; ditto, Unitone, 10/6; Ormond 2-gangs, 7/-; J.B. dual-drum types, 5/6; Utility 2-gangs, unscreened, 4/6; B.A.T.-Lyons 4-gangs, boxed, 13/6; J.B. 3-gang chassis-mounts, 10/6, or with drives, 12/6; Cyldon extensers, 3-gang, 0.0005s only, drum type, soiled, 17/6; disc type, as new, 22/6; H.M.V. 2-gang, with trimmers, similar to Radiophone, new, 5/9.

L.F. Chokes.—Pye 20h., 32h., 6/3; R.I. Pentomite, 9/11; Ferranti B6, R.I. Dux, 4/3; Lissen 20h., 5/-; Nichoke H. 7/3; Pentode Nichoke, 6/3; few Seradex 50h. Pentode chokes, shop soiled, 10/6; Telsen, 100h., 3/9; Lissen, ditto, 2/-.

ELIMINATOR Kits (A.C.).—Heavy duty model, output 550 volts at 120 m.a., complete, £3/5; Westinghouse rectified kits, with metal cases, giving 250v. 80 m.a., with lower tappings and 4v. L.T. winding, £3/5; power packs, giving 200 v. 5ª m.a., metal rectified, £2/7/6; full details for stamp.

MAINS Transformers.—Challis for L.T.2 or 4, 11/6; Marconi 400-0-400 for U5 or U8, 10/6; lists of others for stamp.

SUNDRIES.—Varley Anti-microbos, 2/9; Harlie, 10/6; tone controls, 3/3; aluminium screens, 1/-; valve screens, 1/3; Lotus relays, 4/6; Linesman's Galvo, 4/6; Silver Marshall 3-valve S.G. set, adapted for British valves, £1/5.

LOUD-SPEAKERS.—Epoch 66, 6-volt field, £1/5/6; Rola F7, ditto, new, £1/5; W.B. P.M. speaker, £5 type, 45/-; Magnavox D.C.144s, 2,500 fields, boxed, £1/5; Ormond 12/6 units, 6/9; 8/6 type, 4/9; Wate unit and chassis, 16/6; Lamplugh inductor, £1/2/6.

FIXED Condensers.—Hydra 2mfd., 2,000v. test, 3/6; T.C.C., 2 mfd., 750v. test, 1/9; T.C.C., 4 mfd., 3/-; Telsen Dubilier, etc., 0.01, 0.04, 0.3, 0.1, 0.5 mfd., 9d.

BATTERY Chargers.—Ferranti, ½ amp., 22/6; few new 28.0 volt 1.3 amp., complete, £2; few ditto, 12 volt, metal rectified, 1 amp., £1/9/6.

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MARCONI M.C. 6v. Pot, 17/6; Magnavox M.C. 6v. Pot, 15/-; Baker M.C. 6v. Pot, 12/6.

SONOCHORDE Standard P.M. M.C. Speaker, with universal transformer, unused; 22/6, list 35/-.

SONOCHORDE D.C. Speaker, 2,500 ohms, with universal transformer, unused; 17/6.

LOTUS 0.0005 Slow Motion Condenser, new; 3/-, list 6/6.

J.B. Unitune, with disc drive, fully screened, unused, 10/6; J.B. Single Sugang, unused, 6/6; Ferranti A.F.5, 15/-; Ferranti A.F.11/C, 26/-; Ferranti O.P.M. 11/C, 20/-.

WESTINGHOUSE Metal Rectifier, 300v. at 60 m.a., unused, 13/6; 350v. at 65 m.a., 15/-.

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UTILITY 3-gang Super-het. Condensers, 19/-; Wearite I.F., 7/6 each; K.53 for Baby Super, 6/3; nearest offers.—Parker, 49, Toronto Rd., Exeter. [2206

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A.C.5	200v. 50mA. 4v. Raw A.C.	**70/-**
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Dear Sir,—I have received the A.C.2 Eliminator quite safely. It is very satisfactory and the Trickle Charger works excellently. It has made a big difference to my Set, and is good value for my money. I thank you for the attention you gave my order and will recommend my friends to use Bullphone Products in the future. I might add that there is no trace of Hum in the Unit. Thanking you, I remain, yours sincerely, W. Lounton.

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Dear Sirs,—I purchased one of your Eliminators, model A.C.1, to run my S.T.400 Set, and I have yet to hear a smoother and better Eliminator even at double the price. Four tappings and enough power to work a large power valve is a splendid example of real value for money. Thanking you, I remain, E. J. Parkinson.

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Dear Sirs,—I feel I must write to express my full appreciation for the Bullphone A.C.2, recently supplied by you. I have no hesitation in giving recommendation for such a thoroughly reliable and efficient piece of apparatus. Absence of hum and ease of use is well worth my opinion that this is the finest value in Eliminators.—Yours truly, W. G. Goff.

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SPECIAL Offer of Mains Transformers, manufacturers' type, any input, output 250-0-250 volts 60 milliamps, 4 volts 1 amp. (c.t.), 4 volts 3 amps. (c.t.), 8/6; 180-0-180 volts 40 milliamps, 4 volts 1 amp., 4 volts 2 amps., 4/6; 175 volts 50 milliamps, 4 volts 4 amps., 4 volts 1 amp., 5/6; H.T.8, with 4 volts 3-4 amps., 8/6; with rectifier, 18/6.

MULTI-RATIO Output Transformers, 6 taps giving 15 different ratios, 7/6; Pye chokes, 20 or 32 henries, 4/-.

PREMIER Chokes, 40 milliamps 25 henrys, 4/-; 65 milliamps 30 henrys, 6/-; 150 milliamps 30 henrys, 10/6.

SMOOTHING Chokes for Series Connected Filaments from D.C. Mains, carry 1 amp., 7/6; H.M.V. 110 henry chokes (100,000 ohms resistance, carry 10 m.a.), 3/6.

AMPLION High Inductance Chokes, resistance 2,500 ohms, 80 henrys, 60 m.a.; 5/6.

PREMIER Eliminators, input 200-250 volts, 40-100 cycles A.C., incorporating Westinghouse metal rectifiers, output 250 volts at 60 milliamps, 80 and 120 volt taps, 42/6; with 4 volts 4 amps. L.T. (c.t.), 7/6 extra.

PREMIER Eliminators, output 150 volts at 30 milliamps, 80 and 100 volt taps, with 4 volts 3-4 amps. (c.t.), L.T., 37/6; with trickle charger, 42/6.

PREMIER Eliminators, output 120 volts at 20 milliamps, 80 and 100 volt taps, 27/6; with L.T. trickle charger incorporated, 35/-.

D.C. Eliminators, output 120 volts at 20 milliamps, 80 and 100 volt taps, 15/-; larger model, output 200 volts 50 milliamps, 80 and 120 volt taps, 25/-.

ACCUMULATOR Chargers, 200-250 volts A.C., all incorporating Westinghouse rectifiers, 2, 4 and 6 volts at ½ amp., 17/6; 2, 4 and 6 volts at 1 amp., 22/6; up to 12 volts at 1 amp., 27/6; up to 6 volts at 2 amps., 35/-; up to 6 volts 3 amps., 47/6; charger with 3 12-volt 1-amp. circuits, 75/-.

PREMIER Mains Transformers, all guaranteed, terminal connections, input 200-250 volts, 40-100 cycles, output 135 volts 80 milliamps, for voltage doubling, 8/6; 4 volts 4 amps., centre-tapped, L.T., 2/- extra; Westinghouse rectifier for above, giving 180 volts at 30 milliamps, 8/6.

PREMIER Mains Transformers, output 250-0-250 volts at 60 milliamps, 4 volts 1 amp., 4 volts 2 amps., and 4 volts 3-4 amps. (all c.t.), with screened primary, 15/-.

PREMIER Mains Transformers, output 400-0-400 volts at 100 milliamp., 4 volt 4 amp., and 4 volt 2.5 amp.; 18/6.

H.T.8 Transformers, with 4 volts 3-5 amps. L.T. (c.t.), with screened primary, 15/-; with Westinghouse rectifier, 25/-.

H.T.9 Transformers, output 230 volts 200 milliamps, with 4 volts 4 amps. (c.t.), with screened primary, 15/-; with Westinghouse rectifier, 26/-.

H.T.10 Transformers, with 4 volts 4 amps L.T., 15/-; with rectifier, 27/- (smoother output 200 volts at 100 milliamps).

PREMIER Mains Transformers.—12 volts 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps. and 4 volts 2 amps., 8/6; 14 volts 4 amps., 12/6; 4 volts 3 amps., 7/6; 4 volts 5 amps., 8/6; 22 volts 1 amp., 10/-; 6 volts 2 amps., 7/6.

MAINS Transformers, output 350-0-350 volts 90 milliamps, 4 volts 3 amps. (c.t.), 4 volts 2 amps. (c.t.), 12/6.

AMPLION Mains Transformers, input 100-250 volts, output 350-0-350 volts 120 milliamps, 4 volts 5 amps., 4 volts 2 amps., and 6 volts 1 amp. (all c.t.); 17/6.

T.C.C. Condensers, 250 volts working, 4×4×1 mfd., 5/-; 360 volts working, 4×4×2×2×2 mfd., 7/-; 375 volts working, 6×4×2×2×2 mfd., 10/-; 300 volts working, 4×4×2×1 mfd., 6/-.

400 Volts Working, 3 separate 4 mfd. condensers, 8/6; with 2 separate 1 mfd. condensers, 2/- extra.

WESTERN ELECTRIC, 400 volts working, 0.01×0.01 mfd. 1/-; blocks 4×2×2×2×1×0.09 mfd., 400 volts working, 6/-.

FERRANTI Condenser Blocks, 300 volts working, 4×4×2×2 mfd., all entirely separate; 10/-.

T.C.C. Condensers, 750 volts working, 2 mfd., 4/-; 750 volts working, 4 mfd., 6/-; 4 mfd. 400 volts D.C. working (300 volts A.C. working), 4/-; 4 mfd. electrolytic condensers, 440 volts working, 3/-; 8 mfd., 3/3.

WESTERN ELECTRIC Condensers, 250 volts working, 1 mfd 6d., 2 mfd. 1/-; 400 volts working, 1 mfd. 1/-, 2 mfd. 2/-.

POLAR 3-gang Variable Condensers, tub type, fully screened, split end vanes and disc drive, 0.0005; 10/-.

ORMOND All-brass 2-gang Condensers, semi shielded, 0.0005, 5/-; Amsco 3-gang 0.0005 condenser, with trimmers (listed 30/-), our price 7/6; Polar 0.0005 and 0.00035 Bakelite dielectric condensers, with knob, 1/-.

BRITISH RADIOPHONE 4-gang Condensers, with trimmers, 12/6; fully screened, 16/-.

SPECIAL Offer of Wire Wound Resistances, 4 watts, any value up to 10,000 ohms, 1/-; 8 watts, any value up to 15,000 ohms, 1/6; 15 watts, any value up to 50,000 ohms, 2/6; 25 watts, any value up to 50,000 ohms, 3/6; 50 watts, any value up to 50,000 ohms, 5/-.

WIRE Wound Potentiometers, 15,000 ohms, 1/6; Centralab potentiometer volume controls, 50,000 ohms, 2/-; Colverstats, logarithmically wound potentiometers, 6,000 ohms, 1/9.

HEAVY Duty Variable Resistances, slider type, wound on porcelain, 2,000 ohms, 1-4-amp., 5/-; 500 ohms, 1-2-amp., 5/-.

ROLA 2,000 and 6,500 ohms, type F6, 17/6; Rola F5P.M. permanent magnet, 20/-; F6P.M. permanent magnet, 31/- (all with pentode output transformers).

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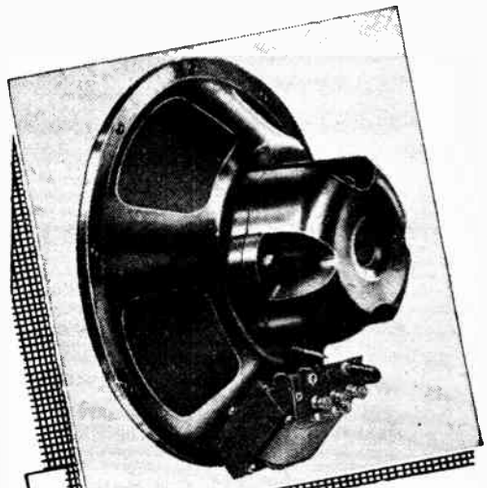

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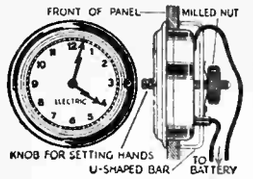

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The British Radio Annual, 1932,

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(This advertisement continued from previous page.)

AMPLION Moving Coil Speakers, type E.M.644, dual field 2,500 and 5,000 ohms (100-250 volts), with output transformer, 12/6; ditto, 200-250 volts A.C., 22/6.

B.T.H. Induction Type (A.C. only) Electric Gramophone Motors, 100-250 volts, 30/- complete; double spring gramophone motors, with 12in. turntable, 15/- complete.

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A.F.7, A.F.5U.S., O.P.M.6C.; what offers?—Verney, Rumsam, Barnstaple. [2197

FERRANTI A.F.5, 15/-; A.F.3, 12/6; Atlas Pentode choke, 10/-; Savage 20-40 henry choke, 6/-; set Eddystone S.W. coils, 10/-; chassismount 3-gang, 7/6; T.C.C. 4 mfd., 800v. test, 4/-; 0.05 mica, 2/6. J. H. Balleny, 11, Hallewell Rd., Edgbaston, Birmingham. [2196

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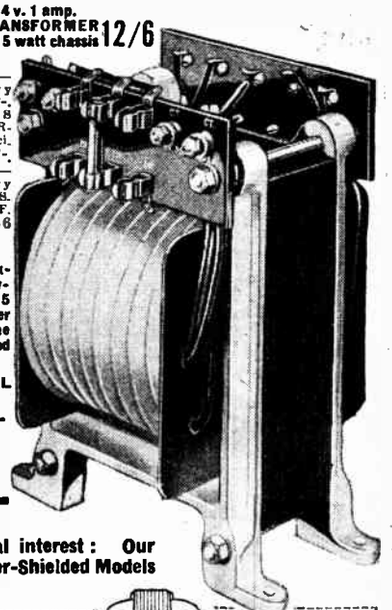

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VARLEY Square Peak Coils, 7/-; H.F. ditto, 5/-; set Colvern single dial super, 18/-; Colvern T.G.S.C. coils, 3/6; cans, 1/6; set Varley Monodial coils, 20/-; Colvern intermediates, 8/-, new; Radiophone 3-gang superhet, 18/6, with cover; Burndept needle armature pick-ups, 25/-.

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B.T.H. Universal Senior Gramophone Motors, A.C. or D.C., brand new, complete with auto stop and all fittings, 55/-; Radiophone 4-gang condensers, 12/6; Kolster-Brandes A.C. or D.C. motors, new, complete, 30/-.

TRANSFORMERS.—Ferranti A.F.5, 18/6; A.F.4, 8/6; A.F.6, 18/6; O.P.M.1c, 16/6; O.P.M.2, 13/6; O.P.M.4, 14/6; Igranic 7/1, G type, 7/6; R.I. Pentonite choke, C.T., 10/6; B.I. choke, new, 14/6; P.M.4c, 16/-.

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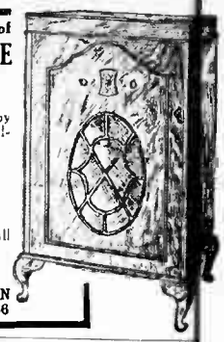

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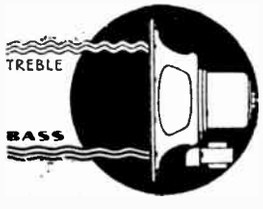

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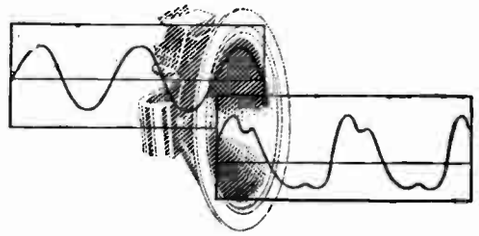

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INDEX TO ADVERTISEMENTS.

	PAGE
Accumulators Elite	10
Alton Battery Co., Ltd.	Back Cover
Atwater-Kent (G. A. Brittain, Ltd.)	Inside Front Cover
Baker's Selhurst Radio	10
Barber & Colman, Ltd.	
Belling & Lee, Ltd.	6
Birmingham Sound Reproducers, Ltd.	
Britannia Batteries, Ltd.	
British Institute of Eng. Technology	8
British Pix Co., Ltd.	v.
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Bullphone Radio	7
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Gramophone Co., Ltd.	2
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Savage, W. Bryan	9
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Wilburn & Co.	3

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WEDNESDAY

MARCH THE TWENTY-NINTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Symphony concert from Queen's Hall, London.
LONDON REGIONAL	Instrumental concert.
NORTH REGIONAL	Choral and orchestral concert.
WEST REGIONAL	Orchestral concert from the National Museum of Wales.
SCOTTISH REGIONAL	Instrumental and vocal concert from Coatbridge.
BELFAST	Orchestral concert from Stranmillis.

ABROAD

BARI	7.35 p.m. Chamber music.
BERLIN (Konigswusterhausen)	8.35 p.m. The Kreutzer Sonata (Beethoven), by Martha Linz and Luise Gmeiner.
BERO-MUNSTER	7.35 p.m. Opera: "Livietta e Tracollo" (Pergolesi), from Basle.
BRUSSELS (No. 2)	7 p.m. Concert from the Norwegian Church, Antwerp.
BUCHAREST	7.45 p.m. Pianoforte recital by Dagobert Buchholtz.
COPENHAGEN	7 p.m. Act 1 of Opera, "Schwanda the Piper" (Weinberger).
EIFFEL TOWER	7.30 p.m. Opera: "The Damnation of Faust" (Berlioz).
HEILSBERG	9.30 p.m. Hugo Wolf Commemoration concert.
HUIZEN	7.40 p.m. The Haarlem Orchestra, conducted by F. Schuurman.
RADIO-PARIS	8 p.m. Lamoureux concert from the Salle Gaveau.
REYKJAVIK	10 p.m. Opera: "La Tosca" (Puccini).
WARSAW	8 p.m. Pianoforte recital by B. Wojtowicz.

ALGIERS

825.3 kc/s, 364 metres; 13 kW.—**7.0 p.m.,** Financial News. **7.10,** Shipping Notes. **7.15,** Agricultural Notes and Weather Forecast. **7.20,** Songs from Oh! Papa!—Operetta (Yvain). **7.35,** Instrumental Solos: Air from The Pearl Fishers (Bizet); Serenade for Concertina (Pierné); 'Cello and Guitar Duets: (a) Jour et nuit (Fomine), (b) My Boat (Dorizo); Pianoforte Solos: (a) Bagatelle (Beethoven), (b) Ecossaises (Kempff). **7.55,** News Bulletin. **8.0,** Time Signal. **8.2,** Travel Talk: Two Thousand Kilometres up the Amazon. **8.15,** Instrumental and Vocal Concert of Spanish Music. **9.10,** Symphony in G Minor (Mozart). **9.40,** News. **9.45,** Light Music. **9.35,** News. **10.0** (approx.), Close Down.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** German Lesson. **8.0,** Military Band Concert, conducted by Colonel Fritz Brase. **9.0,** A Sketch by The Mummers. **9.30,** Instrumental Trio Music. **9.45,** Soprano Solos by Eileen Driscoll. **10.0,** Instrumental Trio Music (contd.). **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert: Selection from Lilac Time (Schubert); Le cou-cou (Daquin); Entr'acte (Chillemont); Romance (Rubinstein); Minuet from Sonata No. 2, Op. 49 (Beethoven); Selection from The Snow Maiden (Rimsky-Korsakov). **7.0,** Dance Music relayed from the Ritz Hotel. **7.30,** Exchange Quotations and relay from the Guildhall. **8.0,** Light Music on Gramophone Records, followed by News. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **9.5,** Concert by the Station Orchestra. **10.0,** Talk in Catalan. **10.15,** Quartet in G (Gretchaninov). **10.45,** Concert by the Station Orchestra (contd.). **11.0,** News Bulletin, followed by Popular Music on Gramophone Records. **11.30,** Dance Music relayed from Hollywood Bar. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc/s, 267.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Report, Tourist Report and Dopolavoro Notes. **7.20,** Giornale Radio. **7.30,** Time and Announcements. **7.35** (approx.), Concert of Chamber Music. Soloists: Milena Barberio (Soprano) and Nina Locuoco (Pianoforte). Overture, Luisa Miller (Verdi); Three Pianoforte Pieces (Pedron); Soprano Solos: (a) Pace montana (Guarino), (b) Stornello (Cimara); Danza antica (Amadei); Soprano Solo, Sgonento (Napoli); Pianoforte Solos (Albéniz): (a) Sevilla, (b) Triana; Rococo Suite (Translateur); Overture, I promessi sposi (Ponchielli); Pianoforte Solos: (a) Gavotte, (b) Studio melodico (Sgambati); Soprano Solo, Cossack Cradle Song (Gubitosi); Minuet (Brero); Pianoforte Solos: (a) Sonata (Dorwell), (b) Tarantella (Rubinstein); Melody (Respighi); Soprano Solo, Nubi folli (Zanella); Profumate (Bolognesi); Literary Notes in the interval. **9.30,** Gramophone Records of Popular Music. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**4.0 p.m.,** Medical Talk. **5.55,** Time Signal and Programme Announcements. **6.0,** Recital of Folk Songs. **6.40,** Talk. **7.10,** Introductory Talk, followed by Rigoletto—Opera in Three Acts (Verdi), on Gramophone Records. **9.0** (approx.), News, followed by Cigány Music from the Rudnicanin Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**1.0 p.m.,** Extracts from Tristan and Isolde—Opera (Wagner), on Gramophone Records, relayed from **Berlin (Witzleben). 1.45,** Programme for Young People: Das kalte Herz—a Radio Play after Wilhelm Hauff. **2.30,** Weather and Exchange. **2.45,** Reading from Die Sonnenblume (Georg von Omptéda) on the Author's Seventieth Birthday. **3.0,** Talk. Are there still undiscovered Animals? **3.30,** See **Hamburg. 4.10,** Dialogue: Twentieth Century Systems of Defence. **4.30,** Talk: Problems of National Education. **5.0,** Quintet in E flat for Oboe, Clarinet, Bassoon, French Horn and Pianoforte (Beethoven). **5.25,** Topical Talk. **5.40,** Wireless Technical Talk. **5.55,** Weather and Announcements. **6.0,** English Lesson. **6.30,** A Poem. **6.35,** Concert from **Frankfurt. 7.0,** See **Hamburg. 8.35,** The Kreutzer Sonata (Beethoven) by Martha Linz (Violin) and Luise Gmeiner (Pianoforte). **9.10,** Weather, News and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Programme from **Stuttgart. 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.0 p.m.,** Topical Talk. **6.10,** Talk: The Times of To-day. **6.55,** Announcements. **7.0,** Orchestral Concert; Conductor, Bruno Seidler-Winkler: Overture, The Taming of the Shrew (Goetz); Suite, Aus Thüringen (Raff); In the Steppes of Central Asia (Borodin); Symphonic Fairy Tale Suite (Lobertz); Piece from Carneval à Paris (Svendsen); Waltz from Little Ida's Flowers (Klenau); Overture, Hunyady László (Erkel). **8.30,** Pianoforte Concerto in C Minor (Mozart), by Romuald Wikarski. **9.0,** Weather, News, and Sports Notes. **9.30,** Hugo Kaun Concert by the Station Choir; Soloist, Maria Kaun (Contralto): Zum Schlafen; Der Igel; Maria am Rosenstrauch; Wellen; Wunder überall. **10.30,** Dance Music by the Jörg Zinne Orchestra. **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

(PTT), 986 kc/s, 304 metres; 13 kW.—**6.5 p.m.,** News Bulletin. **6.15,** Tourist Talk. **6.30,** Lottery Results. **6.35,** Agricultural Talk. **6.50,** News Bulletin. **7.30** (approx.), See **Paris (Eiffel Tower).**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**4.45 p.m.,** Polish Lesson. **5.0,** Hungarian Programme: A Play in Three Acts (Novák). **6.0,** See **Prague. 6.10,** See **Brno. 6.25,** See **Prague. 7.40,** See **Brno. 8.40,** Song Recital by Franz Devinsky. **9.0,** See **Prague. 9.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 352 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc/s, 253 metres.—12.15 p.m.,** Weather for Farmers. **12.10,** Sound Film Music on Gramophone Records. **12.45,** Time, Weather, News and Exchange. **1.5,** Old Dance Music on Gramophone Records. Old English Dances from Shakespeare's Time: Sergei Rachmaninov (Pianoforte); Sarabande (Bach); Andres Segovia (Guitar); Courante (Bach); The New York Philharmonic Orchestra, conducted by Willem Mengelberg: Gavotte, Sarabande, Minuet, Gavotte and Tambourin (Handel); The Budapest String Quartet: Minuet from the Quartet, No. 6 (v. Dittersdorf); The Madami Mandoline Quartet: (a) Gavotte (Scarlatti), (b) Dance (Durante); The Berlin Philharmonic Orchestra, conducted by Fritz Zweig: Minuet from the Symphony in E Flat (Mozart). **1.45,** Programme arranged by the Post Office with Gramophone Records. **2.10,** Agricultural Prices. **3.0,** Talk: Expedition and Adventure Films. **3.30,** Joseph Haas Song Recital by Johanna Thalmann; Six Poems from Gesange an Gott (Jakob Kneip); Lasst aus diesem engen Haus; O Stimme des Weltalls; Des weiss ich und hab' es erlebt; Mitten in der Nacht; In dieser Abendstunde; Wenn einst die Türen des Himmels aufgehn. **4.0,** Review of Emil Witting's Books. **4.15,** Reading: Sellik du Baldenjunge (Emler). **4.30,** Agricultural Prices, followed by Talk: Schablitzki's Marionette Plays. **4.50,** Talk on Marksmanship. **5.10,** Talk: The Countryside in Spring. **5.30,** Orchestral Concert: Overture, Liebe schafft Rat (Fetras); Gavotte, Aus galanter Zeit (Meyer-Helmund); Selection from I Pagliacci (Leoncavallo); Waltz, Wiener Fasching (Kockmann); Selection from The Merry Peasant (Fall); March, Jugendfrühling (Blankenburg). **6.25,** Weather for Farmers and Meat Market Prices. **6.30,** See **Stuttgart. 7.10,** Zeit auf Flaschen—Comedy (Friedrich Freefa). **8.50,** Time, Weather, News, Sports Notes and Programme Announcements. **9.20,** See **Stuttgart. 11.0** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW. **5.25 p.m.,** German Transmission: News, Report for Workers, Talk, Programme for Children, and a Talk on Spring. **6.0,** See **Prague. 6.10,** Psychological Talk. **6.25,** See **Prague. 7.40,** Must the Mandarin die?—Radio Play (T. Fleischmann), with Music by Marcel Poot. **8.40,** Sonata for Violin (Blatny). **9.0,** See **Prague. 9.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**11.0 a.m.,** Concert relayed from the Grand Hotel, Antwerp. **12 Noon,** Journal Parlé. **12.10,** Concert of Light Music on Gramophone Records. **4.0 p.m.,** Dance Music, relayed from the Saint Sauveur Palais de Danse. **5.0,** Report by Dr. Terwagne, President of the International Society of Free Thinkers. **5.15,** Talk on Doctor De Croly. **5.30,** Sonata Recital by Mme. Husson-Michaux (Pianoforte) and Léon Guller (Violin). Sonata (Veracini); Sonata (Schumann). **6.0,** Gramophone Concert: Soir (Fauré); Pavane pour une Infante defunte (Ravel); Les petite ânes (Rasse); A Wedding Procession (Rimsky-Korsakov). **6.15,** Talk on the Belgian Poet, Félix Bolsson. **6.30,** Health Talk. **7.0,** Extracts from the Quartet No. 21 (Mozart) on Gramophone Records. **7.15,** Eros and Psyche—Drama in Verse (Giraud). **8.30,** Gramophone Concert: Selection from Lakmé (Delibes-Tavan); Méditation from Thais (Massenet); Mexican Rhapsody (Briceno); Rêverie (Coppola); Slav Rhapsody (Friedemann). **9.0,** Journal Parlé. **9.10,** Concert by the Paul Moreaux Orchestra relayed from the Menuine Hall, Antwerp. **10.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 887 kc/s, 338.2 metres; 15kW.—Programme in Flemish. **11.0 a.m.,** Extracts from La Gioconda—Opera (Ponch), on Gramophone Records. **12 Noon,** Journal Parlé. **12.10 p.m.,** Concert relayed from the Grand Hotel, Antwerp. **4.0,** Brahms Gramophone Concert: Academic Festival Overture; Symphony No. 2; Song, Von ewiger Liebe; Ballad in G Minor; Hungarian Dances, Nos. 1, 2, 8, 5, and 6. **5.15,** Talk: Free Thought in Belgium and Abroad. **5.30,** Dance Music on Gramophone Records. **6.15,** Talk. **6.30,** Theatre Review. **7.0,** Song and Organ Recital by Michael Gitowsky (Bass) and Jozef Vaes (Organ), relayed from the Norwegian Church, Antwerp: Organ Solo, Symphony No. 5, Part I (Widor); Songs (Händel): (a) Caleb's Aria, from Joshua, (b) Simon's Aria, from Judas Maccabæus, (c) Dank sei Dir, Herr; Organ Solo, Jesus Christus, unser Heiland (Bach); Songs (Schubert): (a) Der Kreuzzug, (b) Der greise Kopf, (c) Dem Unendlichen; Organ Solo, Adagio (Liszt); Two Songs from the Vier ernste Gesänge (Brahms); Prelude and Fugue in B for Organ (Saint-Saëns). **7.45,** Recitations. **8.0,** See **Paris (Radio Paris).** After the Relay, Journal Parlé.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**4.0 p.m.,** Concert by the Station Orchestra. In the interval at **5.0,** News and Time Signal. **6.0,** Talk: Romanian Painting. **6.20,** Talk on Sociology and Politics. **7.0,** 'Cello Recital of Modern Music by Jos. Thaler. Sonata Op. 50 (Toch); Scandinavian Suite (Grainger). **7.30,** Talk. **7.45,** Pianoforte Recital by Dagobert Buchholz. Toccatta in D Minor for Organ (Bach-Busoni); Intermezzo Op. 117, No. 2 (Brahms); Rhapsody, Op. 119 (Brahms); Allegro barbaro (Bartok); Hebrew Dances, Anatre (Stützchevsky); Etude in C (Glazunov). **8.15,** Violin Recital by Marcel Gall: La Follia (Corelli); Turkish March (Beethoven); Zephyr (Hubay). **8.45,** News. **9.0,** Dance Music from the Grand Hotel Restaurant.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW.—Programme also relayed on **840 metres** from **5.30 to 11.0 p.m. 4.30 p.m.,** Violin Recital. **5.0,** Talk. **5.30,** Military Band Concert. **6.45,** Review of Foreign Affairs. **7.0,** Bizanc—Drama in Four Acts (Franz Herczeg). **9.0,** News Bulletin. **9.15** (approx.), Cigány Concert from the Hotel Metropole. **9.45,** Concert of Light Music, conducted by T. Polgar: Overture, Fra Diavolo (Auber); Fantasia, Aschenbrödel (Butykai); Divertissement (Farkas); Ballet Suite (Goldmark); From the Diary of a Humorist (Kazacsay).

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by **Kalundborg, 260 kc/s, 1,153 metres.—11.45 a.m. to 1.0 p.m.,** Concert from the Wivex Restaurant. **2.0,** Gramophone Concert: Waltz, Frühlingsstimmen (Joh. Strauss); Prelude to and Duet from the First Act of Rigoletto (Verdi); Song, A Vucchella (Tosti); Andante from Ruralia Hungaria, Op. 32 (Dohnanyi); Gurli (Sylvain); Let's all go to Reno (Cottrell); Song, He's dead, but he won't lie down (Haines and Harper). **2.30,** Orchestral Concert conducted by Fritz Mahler: Overture, Les Dragons de Villars (Maillart); Suite from The Fair Maid of Perth (Bizet); Waltz, Wienerblut (Joh. Strauss); Radetzky March (Joh. Strauss, Sen.); Four Movements from the Serenade No. 3 in D (Mozart); Ballet Music in G from Rosamund (Schubert); Waltz, Die Sorgenbrecher (Joh. Strauss, Sen.); Overture, Fatinitza (Suppé). In the interval at **3.15,** Talk for Women. **4.40,** Exchange and Market Prices. **4.50,** Talk on the German Language. **5.20,** French Lesson. **5.50,** Weather and News. **6.15,** Time Signal. **6.16,** Talk: A Secret Socialist Congress Fifty Years Ago. **6.45,** Talk on the Following Transmission. **7.0,** First Act of Schwanda the Piper—Opera in Two Acts (Jaromir Weinberger), relayed from the Royal Theatre. **8.30,** Talk: Questions of the Time—Distress in Germany. **9.0,** Negro Spirituals on Gramophone Records: Paul Robeson: My Lord what a mornin'. The Fisk University Jubilee Singers: Ezekiel saw the wheel. Marion Anderson: Deep River. Paul Robeson: (a) I stood on de ribber, (b) Peter, go ring dem bells. The Fisk University Jubilee Singers: Shout all over God's heaven. **9.15,** News Bulletin. **9.35,** Concert by the Radio Chamber Orchestra, conducted by Fritz Mahler: Overture, Armide et Renaud (Lully); The Brandenburg Concerto No. 5 in D for Flute, Violin, Harpsichord, and Strings (Bach). **10.5,** Dance Music from the Nimb Restaurant. In an interval at **11.0,** Town Hall Chimes. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsburg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11.0 a.m.,** Light Music on Gramophone Records. **11.30,** News Bulletin. **11.45,** Variety Concert. **5.30 to 7.0,** Programme in English by the I.B.C. C. Danvers-Walker, B. McNabb, and F. Lamping announcing. (Times subject to

SUN. MON. & TUES. PROGRAMMES

alteration.) 5.30, Military Band Concert for Portsmouth Listeners. Naval Patrol (Williams); Amorettentanze (Gungl); Old Panama (Alford); Valse des Alouettes (Drigo); Parade of the Tin Soldiers (Jessel); The Turkish Patrol; Wood Nymphs (Coates); Military March (Schubert). 6.0, Orchestral Concert of Tangos for Southsea Listeners. Marion; Il Conto dell' attesa; I kiss your hand Madame; Farewell; Mariette; Thrill me; Little Lady; Mama Inez. 6.30, Vocal Concert for Isle of Wight Listeners. Songs: (a) Passing by, (b) Only a Rose, (c) My Dreams. Violin Solo: Because. Songs: (a) At Dawning, (b) To Mary, (c) Maire my Girl. Violin Solo: Song of Songs. 7.0, Local News and Light Music on Gramophone Records. 7.30, Radio Gazette. 8.0, Popular Concert. 8.30, "Brobdingnac" or "La Dictature"—Comedy in Four Acts (R. Cortal and Marc Henri Miles). 10.0 till Close Down, Programme in English by the I.B.C. (Times subject to alteration.) 10.0, Variety Music. It's great to be in Love; I idolise my Baby's eyes; Flame of Desire; You call it madness, but I call it love; Mona Lisa; You try somebody else; By the Fireside; Ecstasy; I'm sorry dear; Falling in love again; One little Quarrel; Life is just a bowl of Cherries; The Song of the Islands; Bend down Sister; Save the last Dance for me. 11.0, Orchestral Concert. Overture, Mignon (Thomas); Drinking Song from The Rose of Persia; Spring Song (Mendelssohn); The Song that reached my Heart; Hungarian Dance, No. 6 (Brahms); Selection from "Il Trovatore" (Verdi). 11.30, Songs from Musical Comedies by the Studio Chorus: (a) The Merry Widow (Lehár), (b) La Poupée (Andran), (c) Miss Hook of Holland, (d) The Maid of the Mountains (Fraser Simson). 12 Midnight, Variety Music. Marigold; Keep a Song in your Soul; Down the River; A Night in Venice; I've got a Girl; Maggie's Cold; Medley of Popular Airs. 12.30 a.m. (Thursday), Scottish and Irish Songs. Wee Cooper O'Fife; O'a' the Airts; To Mary in Heaven. Orchestra: Irish Jigs; The Londonderry Air; Bonnie wee thing; The Mountains of Mourne. Orchestra: Eightsome Reel. 1.0, Organ Recital. In a Japanese Garden (Higgs); Two Songs (Woodforde Finden): (a) Till I wake, (b) Kashmiri Love Song; The Sacred Hour (Ketelbey); Sylvan Scenes (Fletcher) Eleanor (Hanley); Now I'm in love (Yellen); The Love Waltz (Heymann). 1.30 (Thursday), Vocal Duets; Open up dem pearly Gates; Every time my Sweetie passes by; She was poor, but she was honest; High Society Blues; Life is just a Bowl of Cherries; Zululand; Guilty. 2.0, Variety Music. Hock Caroline; By the Fireside; Sing Brothers; Good-night, little Girl, Good-night; Long Ago; What makes you so adorable; When the Rest of the Crowd goes home; Don't tell a Soul; Marta; We will always be Sweethearts; Shadows on the Window; What would you do?; How are you?; Song of the Harp. 2.57, I.B.C. Good-night Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW. Relayed by **Cassel, 1,220 kc/s, 245.9 metres.**—**2.16 p.m.,** Programme for Young People. **3.50,** Economic Notes. **4.0,** Concert by the Radio Orchestra: Part I: Conductor: Reinhold Merten: Symphonic Poem, Orpheus (Liszt); Italian Suite (Raff); Part II: Conductor: Walter Caspar: Old Dance Music. **6.15,** Economic Notes. **5.25,** Talk: German Wireless in Chicago. **5.50,** Topical Talk. **6.15,** Time, Programme Announcements, Weather and Economic Notes. **6.30,** Orchestral Concert: Part I: Marches. Part II: Waltzes by Lanner and Strauss. **8.30,** Brahms Memorial Concert, relayed from St. Catherine's Church; Motet, Schaffe in mir Gott ein reines Herz; Motet, Warum ist das Licht gegeben; Readings. **9.0,** Time, News, Weather and Sports Notes. **9.20,** See **Stuttgart.** **11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBURG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 630 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**3.30 p.m.** (from **Flensburg**). Concert of Scandinavian Music by the Municipal Orchestra, conducted by Kurt Barth: Overture, Im Hochland (Gade); Symphonic Poem, Korsholm (Järnefelt); Divertimento for Strings (Rangström); Tone Poem, Finlandia (Sibelius); Swedish Rhap- Gramophone Records. **2.25,** Vocal and Insody (Alfoen). **4,30,** Radio Report from the Excavation of a Pre-historic House in Duhnen. **4.55,** Variety Programme. **5.50,** Exchange and Market Prices. **6.0,** Talk: Austria as a Frontier Land. **6.30,** Hermann Munk sings Weber Songs to the Guitar; Variations on a Theme, Op. 2; Aria from Die Minnesänger; Sanftes Licht; Waltz; Lass mich schlummern; Herzlein schweige; Liebeszauber; Allemande, Op. 4; Liebeslied; Abschied. **7.0,** Talk: Germany builds a Trading Vessel. **8.35,** See **Munich.** **9.20,** Time, Weather, Announcements, Sports and Police Notes. **9.40,** Topical Talk. **9.50,** Concert of Light Music on Gramophone Records. In an interval at **10.20,** Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.**—**12.5 p.m.,** Gramophone Concert. In the interval at **12.20,** News. **1.30,** Programme arranged by the Post Office, with Gramophone Records. **2.0,** Exchange Quotations. **2.20,** Talk for the Housewife. **2.30,** Programme for Children. **3.0** (from **Danzig**), Dialogue for Parents. **3.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: March, Mein Regiment (Blankenburg); Overture, Albin (Flotow); Waltz, La Housarde (Ganne); Die kleinen Soldaten (Marks); Anzug der Stadtwache (Jessel); Selection from Herbstmanöver (Kalman); Overture, Light Cavalry (Suppé); Einszwei-drei die ganze Kompagnie (Reisfeld-Marbot); Worum schwärmt die Rosmarie für die stramme Infanterie; Waltz, Soldatenlieder (Gungl); Potpourri, Soldatenliebe-Soldatenleben (Roland). **4.50,** Talk: Champions in the Animal World. **5.15,** Market Prices. **5.20,** Ice Report. **5.30,** The Art of Playing the Pianoforte—Talk, with Illustrations: Sonata in D (Haydn); Sonata in E flat (Haydn). **6.0,** Bridge Lesson. **6.25,** Talk on George Baron von Ompteda on his Seventieth Birthday. **6.55,** Weather and News. **7.0,** Dance Music by the Small Station Orchestra, conducted by Eugen Wilcken, and the Ednur Runde Band. **8.30,** News. **8.35,** See **Munich.** **9.20,** News Bulletin. **9.30,** Hugo Wolf Commemoration Concert by the Wireless Chorus and the Königsberg Opera House Orchestra, conducted by Ludwig Leschitizky. Soloist: Ilonka von Ferenczy (Songs). Prelude to and Entr'acte Music from Der Corregidor. Songs, with Orchestral Accompaniment, Italian Serenade. Ballad for Choir, Der Feuerreiter. **10.30** (approx.), Close Down.

HILVERSUM

Announced **HUIZEN, 1,013 kc/s, 296.1 metres;** 20 kW. (7 kW. up to **4.40 p.m.**). Programme of the Christian Radio Society (N.C.R.V.).—**12.40 p.m.,** Academic Festival Overture, Op. 80 (Brahms), on Gramophone Records. **12.55,** Organ Recital. **1.55,** Symphony in C—the Jupiter (Mozart), on Gramophone Records. **2.25,** Vocal and Instrumental Concert: Hymn, Hör mein Bitten (Mendelssohn); Violin Solos: (a) Romance in F (Beethoven), (b) Allegro (Fiocco); Pianoforte Solo, The Moonlight Sonata, Op. 27, No. 2 (Beethoven); Songs: (a) Swedish Song, The Shepherd, (b) Russian Song, The Nightingale, (c) Piece (Chopin), (d) Lithuanian Song (Chopin); Pianoforte Solos: (a) Sonetto del Petrarca (Liszt); (b) Spinning Chorus from The Flying Dutchman (Wagner-Liszt). Interlude on Gramophone Records: (a) Overture, The Flying Dutchman (Wagner), (b) Melody for 'Cello and Pianoforte (Rubinstein); Violin Solos: (a) Romance (Verhalleu), (b) Polonaise (Hofmeester); Six Dutch Songs. **4.10,** Programme to be announced. **4.40,** Programme for Children—Sacred Music. **5.40,** Talk by Heer Terwogt. **5.55,** Talk by Heer Stakelkamp. **6.10,** Elementary English Lesson. **6.40,** Talk arranged by the Department of Buildings and Roads. **7.10,** Police Notes. **7.25,** News Bulletin. **7.40,** Concert by the Haarlem Orchestra, conducted by Frits Schnurman: Entry of the Guests into the Wartburg, from Tannhäuser (Wagner); Siegfried Idyll (Wagner); Kol Nidrei (Bruch); Suite, Jeux d'enfants (Bizet); 'Cello Solo, Elégie (Fauré); Prélude à l'après midi d'un faune (Debussy). **8.40,** Talk on New Guinea. **9.10,** Concert (contd.): Overture, Le carnaval romain (Berlioz); Algerian Suite (Saint-Saëns); Concert Overture, Cyrano de Bergerac Wagemaar); Rhapsody, Piet Hein (van Anrooy). **9.40** (in an interval), News Bulletin. **10.10,** Gramophone Concert of Popular and Sacred Music. **11.10** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

(Announced **HILVERSUM**). **160 kc/s, 1,875 metres);** 8.5 kW. Programme of the Workers' Radio Society (V.A.R.A.).—**11.40 a.m.,** Concert by De Notenkrakers, conducted by D. Wins. Soloist: A. de Booy (Songs). **1.25 p.m. to 1.40,** Interval. **1.40,** Programme for Women. **2.40,** Programme for Children. **5.10,** Concert of Balalaika Music by the V.A.R.A. Orchestra, conducted by I. Powariev. **5.40,** Concert by the V.A.R.A. Orchestra, conducted by H. de Groot. Selection from Les dragons de Villars (Maillart); Glocken-serenade (Kockett); Berceuse from Jocelyn (Godard); Rote Rosen (Lehár); Potpourri, Halloh, hier Wien (Morena). **6.10,** Talk arranged by the R.V.U. **6.40,** Topical Talk. **7.0,** Concert by the V.A.R.A. Orchestra, conducted by H. de Groot: Prélude à l'après-midi d'un faune (Debussy); Concerto in D, Op. 19 (Prokofiev); Overture, Fra Diavolo (Auber); Selection from The Bird Fancier (Zeller); Murmelndes Lüftchen (Jensen); Pas des fleurs (Delibes); Slav Rhapsody (Friedemann). In the intervals at **7.38,** S.O.S. Announcements, and at **7.40,** Talk. **8.40,** Eva Bonheur—Play (Heyermans). **10.25,** Announcements and Variety Programme. **10.40,** Organ Recital by J. Jong: Overture, Frau Luna (Lincke); The Tyrol in Song and Dance (Fetras); Gipsy Dream (Mark-uh); Zusammen auf Marsch (Sreininger-Pola); Let's all sing like the Birdies sing (Evans); After To-night we say Good-bye (Towers). After the Concert, The Gipsy Princess—Operetta (Kálmán) on Gramophone Records. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

NICE, 1,202 kc/s, 249.6 metres; 0.8 kW.—**9.30 to 10.30 p.m.,** Programme in English by the I.B.C.: H. K. Hitchcock, announcing.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**6.15 p.m.,** Announcements and Gramophone Records. **6.25,** Report of the Polish Youth Association. **6.30,** See **Warsaw.** **9.40,** Light Music on Gramophone Records. **10.0,** The Letter Box in French.

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—**6.30 p.m.,** Popular Concert. **7.10,** Talk for Women. **7.30,** Variety Programme. **7.50,** Talk: Auto-Suggestion. **8.10,** Popular Concert. **8.40,** Sports Notes. **8.50,** Evening Concert. **9.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by **Helsinki, 815, kc/s, 368.1 metres.**—**4.0 p.m.,** Programme for Children, relayed from **Tampere, 536 kc/s, 560 metres. 4.40** Programme for Girls. **5.15,** Esthonian Lesson. **5.40,** Talk. **6.5,** Concert by the Laulu-Miehet Choir. **7.45,** News in Finnish. **8.0,** News in Swedish.

LANGENBERG

WESTDEUTSCHER RUNDFUNK, 635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert, conducted by Eysoldt. Soloist: Theodor Heidmann (Bass). Overture, Abu Hassan (Weber); Two Waltzes, Op. 54 (Dvorák); Bass Solos: (a) Aria from L'Elisir d'amore (Donizetti), (b) Air from Czar and Carpenter (Lortzing); Selection from Bank Ban (Erkel); Hungarian Rhapsody No. 13 (Liszt); Meditation (Taylor); Overture, Prince Methuselah (Joh. Strauss); Songs: (a) Ich weiss schon, was ich möcht' (Strauss), (b) Irmelin Rose (Peterson-Berger); Grüss Gott mit hellem Klang—for Male Voice Choir (Weninger). In the interval at **1.0 p.m.,** News Bulletin. **1.30,** Sponsored Programme with Gramophone Records. **2.30,** Exchange and Time Signal. **2.50,** Programme for Children. **3.20,** Talk: The Songs of Germany's Native Birds. **3.40,** Talk by Christian Baron von Ompteda on the Seventieth Birthday of Georg Baron von Ompteda. **4.0,** See **Frankfurt.** **5.20,** Talk on Music. **5.45,** Weather, Time, Exchange and Sports Notes. **6.0,** Talk: Sunday Shop closing. **6.20,** Health Talk: Nerves. **6.35,** The World on Gramophone Records—South of the Equator. **6.55,** First General News. **7.0,** See **Hamburg.** **8.30,** Concert by the Little Station Orchestra, conducted by Eysoldt. **9.15,** News and Sports Notes. **9.30,** See **Stuttgart.** **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by **Dresden, 941 kc/s, 319 metres.**—**11.5 a.m.,** Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber: Overture, Czar and Carpenter (Lortzing); Serenade in E Minor (Fuchs); Selection from Die drei pintos (Weber); Shakespeare Suite No. 2 (Humperdinck); Suite, Bunte Reihe (Möllendorf); Waltz (Waldteufel); Selection from Clo-clo (Lehár). In the interval at **12 Noon,** News, Weather, and Time. After the Concert, Exchange Quotations. **1.0 p.m.,** Gardening Talk. **2.35,** Exchange and Market Prices. **3.0,** Programme for Children: Part I: Frühling—Radio Play (Else Obrig); Part II: Thüringian Folk Songs; Part III: Reading (Herbert Roth). **4.50,** Exchange, Weather and Time. **5.10,** Book Review. **5.35,** Italian Lesson. **5.55,** Talk: Fifty Years of Financial Reform in Germany. **6.5,** Talk: Motor Traffic Regulations. **6.15,** Reading: Wanderings through the Mark of Brandenburg (Theodor von Fontane). **6.50,** Topical Talk. **7.0,** See **Berlin (Witzleben).** **9.10,** News Bulletin. **9.45,** See **Stuttgart.** **11.0** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

622 kc/s, 674.7 metres; 7 kW.—**5.0 to 5.30 p.m.,** Programme in English by the I.B.C. **5.0,** International Broadcasting Club Concert. Selection from White Horse Inn (Stolz-Benatzky); Songs: (a) Stonecracker John, (b) The Wolf; Selection from Countess Maritza (Kálmán); Songs: (a) The Sergeant of the Line, (b) Rocked in the Cradle of the Deep; You are my Heart's Delight, from The Land of Smiles (Lehar). **5.30,** Light Music on Gramophone Records. **6.0,** Russian Lesson. **6.30,** Literary Talk. **7.0,** Concert of Music by Anton Svetek. **8.15,** Quintet Concert. **9.15,** Time and News.

LWOW

788 kc/s, 381 metres; 16 kW.—**6.10 p.m.,** Miscellaneous Items. **6.30,** See **Warsaw.** **7.0,** Choral Concert of Light Music. **7.50,** See **Warsaw.** **9.40,** Talk in English: Poland and her International Relations. **9.55,** See **Warsaw.** **10.30** (approx.), Close Down.

LYONS

LA DOUA, PTT, 644 kc/s, 465.8 metres; 1.5 kW.—**6.30 p.m.,** Radio Gazette for Lyons and the South East. **7.20,** The Damnation of Faust—Opera (Berlioz), relayed from the Opéra, Paris. News after the Opera.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**10.30 p.m.,** Concert of Variety Music. **10.45,** Radio Chronicle. **11.0,** Concert (contd.). **11.35,** Talk. **11.40,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO (EAJ7), 707 kc/s, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes. Exchange Quotations, Literary Talk and Request Gramophone Records. **8.25,** News Bulletin and Political Review. **8.30 to 9.30,** Interval. **9.30,** Chimes, Time Signal. Political Review and a Play (Cocteau), translated by Julio Gómez de la Serna. **11.45,** News Bulletin. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**5.25 p.m.,** Brass Band Concert, relayed from **Kunčicky. 6.0,** See **Prague.** **6.10,** See **Brno.** **6.25,** See **Prague.** **7.40,** See **Brno.** **9.0,** See **Prague. 9.15** (approx.), Close Down.

MOSCOW

230 kc/s, 1,304 metres; 100 kW.—**4.30 p.m.,** A Sketch (Haszek). **5.30,** Concert, relayed from the Small Conservatoire Hall. **8.0,** Talk in English: The Miner in the Soviet Union.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**4.0 p.m.,** Concert by the Fritz Reith-meier Orchestra: Overture, Der Wildschütz (Lortzing); Albumblatt (Humperdinck); Selection from Hansel and Gretel (Humperdinck); Murmelnde Quelle (Lange); Suite from Der Rosenkavalier (R. Strauss); Potpourri, An Evening in Grinzing (Danber); Gaukler im Orient (Lindemann). **5.15,** Italian Lesson. **5.35,** Talk: The Civil Service Candidate. **5.55,** Time, Weather and Agricultural Notes. **6.5,** Talk: Art and Advertising. **6.25,** Concert of Folk Music by the Oktavia Concertina Society. **7.0,** See **Hamburg.** **8.35,** Hundreds and Thousands—a Gramophone Medley (arr. Bruno Aulich). **9.20,** Time, Weather, News and Sports Notes. **9.45,** Serenade conducted by Erich Kloss. **11.0** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.**—**4.15 p.m.,** Concert of Light Music: Alte Refrain (Kreisler); Viennese Caprice (Kreisler); Parlez moi d'amour (Lenoir); Waltz, Poem (Fibich); Russian Tango (Markush); Foxtrots and Waltzes. **4.45,** Literary Review. **5.0,** French Lesson. **5.30,** Programme for Girls. **6.0,** Announcements, Weather, and News. **6.30,** Talk: Problems of Philosophy. **7.0,** Time Signal. **7.1,** Concert by the Station Orchestra, conducted by Hugo Kramm: Overture, Der Pfeiffertag (von Schillings); Selection from Der Rosenkavalier (R. Strauss); Selection from Die tote Stadt (Korngold); Selection from The Sunken Bell (Respighi); Selection from Don Juan's Last Adventure (Graener); Intermezzo from Hary Janos (Kodaly); Selection from Jenufa (Janacek). **8.0,** Recitations. **8.30,** Market Prices, Weather and News. **9.0,** Topical Talk. **9.15,** Bridge Lesson, relayed from **Aalesund, 447.1 metres. 9.45,** Gramophone Dance Music.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—Transmits at intervals from **7.0 p.m.**, Dopolavoro Notes, Tourist Talk, Agricultural Notes and Giornale Radio. **7.20,** Light Music on Gramophone Records. **7.30** (in an interval), Time Signal and Announcements. **7.45,** Variety Concert. Soloists: Il. di Gregorio (Soprano) and Ercole Bando (Guitar). Bacchanale from Philémon et Baucis (Gounod); Soprano Solos: Nel giardino del silenzio and Buon di miseria (Tirindelli); Gigue (Wormser); Guitar Solos: (a) Waltz (Navone), (b) Fantasia (Decher); Soprano Arias from (a) The Magic Flute (Mozart), (b) Mireila (Gounod); Dance from The Fair Maid of Perth (Bizet); Guitar Solo: Sicilian Tarantella (Longo); Overture, Le donne curiose (Wolf-Ferrari). In the interval, Talk. **9.0,** Song Recital. **9.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.,** Talk on Music. **6.0,** Le Journal Parlé. **6.45,** Programme for Children. **7.20,** Weather. **7.30,** The Damnation of Faust—Opera (Berlioz), relayed from the Opéra.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**5.45** Le Journal Parlé. **6.0,** Talk: The Cercle Ronsard. **6.10,** Popular Music on Gramophone Records. **7.0,** Talks. **7.30,** Chamber Music Concert. **8.10,** Sponsored Concert. **9.10,** Dance Music from the Lido. **10.0** (approx.), Close Down.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**5.45 a.m.,** Physical Culture. **6.30,** Weather and Physical Culture (contd.). **6.45,** Gramophone Records: Selection from Les vingt-huit jours de Clairette (Roger-Tavan); Selection from La Vie Parisienne (Offenbach). **7.0,** Press Review and Weather. **11.0,** Educational Talk. **11.15,** Concert of Operetta Music by the Radio Paris Orchestra: Selection from La petite bohème (Hirschmann). **11.30,** Organ Recital by G. T. Desserre, relayed from the Gaumont Palace: Ballet Music from Les deux Pigeons (Messager); Gracieuse valse (Ardely); Les airs de Fragson (Salabert). **12 Noon,** Exchange, News and Weather. **12.5 p.m.,** Orchestral Concert (contd.): Selection from The Countess Maritza (Kálmán); Selection from Madame Favart (Offenbach); Selection from The Mikado (Sullivan); Selection from Hans the Flute-player (Ganne); Waltz from Der lustige Krieg (Joh. Strauss). **12.30,** Exchange. **1.0,** Exchange. **2.45,** Exchange and Market Prices. **5.10,** Agricultural Talk. **5.30,** Market Prices, Weather and Agricultural Report. **5.40,** German Lesson. **6.0,** Medical Talk. **6.20,** Gramophone Records: The Arrival of the Circus (Rust); Lassitude (Hermann); Ton nom (Malderen); Berceuse (Beamne); Les Roses de Saadi (Hermann); Cantique d'amour (Georges-Charmettes); Catalan Caprice (Albeniz-Chapelier). **6.50,** Commercial Prices and News. **7.0,** Literary Readings. **7.30,** News and Weather. **7.40,** Fashion Review by Mlle. José. **7.45,** Gramophone Records: Overture, The Secret Marriage (Cimarosa); Aria from Le Devin du village (Rousseau); Songs (Debussy): (a) Fêtes galantes, (b) Mandoline. **8.0,** Concert by the Lamoureux Concert Society, conducted by Albert Wolff, relayed from the Salle Gaveau: Overture, Gwendoline (Chabrier); Symphonie Poem, Ophelia (Bondeville); Concerto (Ravel); Extracts from Le Roi David (Honegger), by the Paris Mixed Choir and Soloists, conducted by Marc de Ranse.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.,** Work-a-day Thoughts. **9.5,** Businesss News. **9.15,** Ballroom Promenade, from **New York.** **9.30,** Weather Report. **9.32,** Market Reports. **9.45,** Blue Ridge Buddies. **9.57,** David Lawrence Dispatch. **10.0,** Jean and Gene. **10.15,** Dick Daring, from **New York.** **10.30,** The Singing Lady. **10.45,** Little Orphan Annie, from **New York.** **11.0,** Booth Tarkington's Maude and Cousin Bill, from **New York.** **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.27,** Strange Facts. **11.29,** Temperature Report—Philadelphia Company. **11.30,** KDKA Orchestra. **11.45 to 3.15 a.m. (Thursday),** New York Relay. **11.45,** Today's News by Lowell Thomas. **12 Midnight,** Amos 'n' Andy. **12.15,** The Southern Singers. **12.30,** International Tidbit. **1.0,** Eno Crime Club. **1.30,** Time Signal and Harriett Lee and her Leaders. **1.45,** Country Doctor. **2.0,** Adventures of Sherlock Holmes. **2.30,** Woodbury Programme with Morton Downey and Donald Novis. **3.0.** D. W. Griffith's Hollywood. **3.15,** Around the Cracker Barrel. **3.30,** Music Magic, from **New York.** **4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report—Philadelphia Company. **4.12,** Weather Report. **4.15,** Press Last-minute News Flashes. **4.20,** Smith Ballew and his Orchestra. **4.58,** KDKA Artist Bulletin. **5.0,** College Inn Orchestra, from **New York.** **5.30,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

MARCH 29th WEDNESDAY *continued*

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by Isa Krejci: Overture, Il Seraglio (Mozart); Overture, The Ruins of Athens (Beethoven); La Boutique fantasque (Rossini-Respighi); Waltzes (Smetana); Serenade (Suk); Festival March (Dvorák). **4.0,** Talk: The Effect of School on the Modern Child. **4.10,** A Marionette Play (Masek) after a Story by Pocci, with Music by Paukner. **5.5,** Agricultural Report. **5.15,** Gardening Talk. **5.25,** News in German. **5.30,** German Transmission: Reading, Talk for Workers, and Market Prices. **6.0,** Chimes. **6.1,** News Bulletin. **6.10,** See **Brno.** **6.25,** Military Band Concert, conducted by Jan Pesta. In the interval, Talk. **7.40,** See **Brno.** In the interval at **8.0,** Time Signal. **8.40,** Pianoforte Recital by Eleanor Spencer: Pastorale (Scarlatti); Ondine (Ravel); Papillons (Schumann). **9.0,** Time Signal. **9.1,** News Bulletin. **9.15,** Review of Foreign Affairs in French. **9.30** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW; **LAUSANNE, 442 kc/s, 680 metres;** and **GENEVA, 395 kc/s, 760 metres.**—**5.0 p.m.** Programme for Children relayed from **Nyon.** **6.0** (from **Lausanne**), Weather Forecast, News Bulletin and Announcements. **6.30** (from **Lausanne**), Talk: The Care of Fruit Trees. **7.0** (from **Lausanne**), Clarinet and Pianoforte Recital, Two Pieces for Clarinet and Pianoforte: (a) Sonata in G Minor (Handel), (b) Rêverie from the Suite algérienne (Saint-Saëns); Pianoforte Solos: (a) Ballad (Dvorák), (b) Zephyr (Suk); Fantasias for Clarinet and Pianoforte (Schumann). **7.40** (from **Lausanne**), Song Recital by Mme. Berthe de Vigier. In the interval: Reading of Poems. **8.15** (from **Lausanne**), Dramatic Programme. **9.0,** News Bulletin and Weather Forecast. **9.10** (from **Lausanne**), Dance Music relayed from the Bel Air Metropole. **10.0** (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW. **5.45 p.m.,** Dramatic Programme. **7.0,** News. **7.15,** Concert by the Conventum Praesidiorum, relayed from the Latvian University. Part I, The Death of Jagailis—Ballad for Baritone and Choir with Pianoforte and Harmonium Accompaniment (Medins). Part II, Latvian Songs. **8.0,** Weather and News. **8.30,** Concert of Light Music. Overture, The Gipsy Baron; Waltz from The Countess Maritza (Kálmán); Gavotte (Meyer-Helmund); Rhineland Suite (Morena); Selection from The Lazy John (Nedbal); Bolero (Elliott); Waltz, Dorfkinder (Kálmán); Military March (Schubert). **9.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

(IRO), 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 1,810 kc/s, 25.4 metres.**—**12 Noon,** Time and Announcements. **12.2 to 1.15 p.m.,** Orchestral Concert: The Belles of Barcelona (Payne); Song, with Hawaiian Guitar, Onda (Carducci); Selection from The Flower of Hawaii (Abraham); My Dream (Gilbert); Fantasia africana (Donati); Fantasia on Negro Spirituals for Voice and Orchestra (Foulds); Lucia, Luci (de Curtis); Spanish Song (Valdes); Patrick (Wlastov). In the interval from **12.30 to 12.45,** Giornale Radio and Exchange. **3.45,** Children's Radio Review. **4.10,** Announcements. **4.15,** Exchange, Report of the Royal Geographical Society and Giornale Radio. **4.30 to 5.15,** Song Recital by Ré Kosterg (Soprano) and Angelo Parigi (Tenor). Four Old Dutch Songs for Soprano, Eight Tenor Songs from Dichterliebe (Schumann); Three Songs for Soprano from Chants d'Auvergne (Canteloube). **6.0 (Naples),** Shipping and Sports Notes. **6.10,** Agricultural adn Dopolavoro Notes. **6.20,** Giornale Radio and Light Music on Gramophone Records. **7.0,** Time and Announcements. **7.15,** Medical Talk. **7.30,** Sports Notes and Tourist Report. **7.45,** Relay from a Theatre. In the intervals, Talk and News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** and by **W2XAD** (See Short-Wave List).—**7.30 p.m. to 12.15 a.m. (Thursday), New York** Relay. **7.30,** Westminster Choir. **8.0,** Two Seats in the Balcony. **12 Midnight,** Mischa Weisbord (Violinist). **12.15 a.m. (Thursday),** Stock Reports. **12.30 to 2.30, New York** Relay. **12.30,** Soloist. **12.45,** The Goldbergs. **1.0,** Royal Vagabonds. **1.30,** The Shadow. **2.0,** General Tire and Rubber Company Programme. **2.30,** Supper Club Orchestra, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres.**—**11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40** (from **Berne**), Orchestral Concert. **12.35 p.m.,** Weather and Exchange. **12.40 to 2.30,** No Transmission. **2.30** (from **Berne**), Viennese Folk Music on Gramophone Records. **3.30** (from **Berne**), Programme for Children. **4.0** (from **Berne**), Songs on Gramophone Records. **4.30,** Weather Report. **4.32 to 5.30,** No Transmission. **5.30** (from **Basle**), Talk: People and Dogs. **6.0,** Time, Weather, and Market Prices. **6.15** (from **Basle**), Talk on Majorca. **6.45** (from **Basle**), Recital of Violin Sonatas. **7.35** (from **Basle**), Livietta e Tracollo—Opera (Pergolesi). **8.30,** Weather and News. **8.40** (from **Basle**), Yodel Duets. **9.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

RADIOTJANST (SASA), 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,225.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**4.5 p.m.,** Accordion Music. **4.30,** Reading. **4.55,** Popular Music on Gramophone Records. **5.55,** Talk. **6.15,** Weather and News. **6.30,** Talk. **7.0,** Popular Music on Gramophone Records. **7.15,** A Play—(Oye Ekelund). **8.0,** Symphony Concert. **8.45,** Weather and News. **9.0,** Dance Music. **10.0** (approx.), Close Down.

STRASBOURG

859 kc/s, 345 metres; 11.5 kW.—**10.30 a.m.,** Gramophone Concert of Classical Music. **11.45,** News. **12 Noon,** Time and Exchange. **12.5 p.m.,** Light Music on Gramophone Records. **1.0 to 2.30,** Interval. **2.30,** Concert relayed from **Radio Coloniale (Paris) (11,705 kc/s, 25.63 metres).** Conductor: Henri Tomasi. Symphony Concertante for Oboe, Clarinet, Bassoon and Horn (Mozart); Siegfried Idyll (Wagner); Scènes municipales (H. Tomasi); Ballet Music from La boîte à joujoux (Debussy). **4.0,** Concert of Jazz Music, conducted by Roskam. **5.0,** Trio Concert of Variety Music, relayed from **Lille (1,130 kc/s, 265.4 metres).** **6.0,** Legal Talk in French: Amusement Taxes. **6.15,** Talk in German on Political Economy. **6.30,** Time and News. **6.45,** Gramophone Concert: Second Potpourri of Waltzes (Robrecht); Ein Abend in Grinzing (Danber); Aubade printanière (Lacombe); Selection from Lysistrata (Lincke); Valse triste (Sibelius); Spring Song (Sibelius); Third Potpourri of Waltzes (Robrecht). **7.20,** Lottery Results. **7.30,** Les Béatitudes—Oratorio for Soloists, Choir and Orchestra (César Franck), relayed from the Conservatoire, **Metz. 10.0,** Quintet Concert, relayed from **Radio Coloniale (Paris). 11.0** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by **Freiburg, 527 kc/s, 570 metres.**—**12.30 p.m.,** Concert from **Langenberg. 1.0,** Musical Programme arranged by the Post Office. **1.15 to 1.30** (from **Mannheim**), Musical Programme arranged by the Post Office. **3.0,** Programme for Children. **4.0,** See **Frankfurt. 5.15,** Time, Weather, and Agricultural Notes. **5.25,** Talk on Everyday Psychology. **5.50,** Talk: Relics of Ancient Races in the Amazon Primeval Forests of Amazonas. **6.15,** Time and News. **6.30,** Concert of Swabian Peasant Music. **7.0,** See **Hamburg. 8.30,** Sonata in A for Violin and Pianoforte, Op. 100 (Brahms), by Catharina Bosch-Möckl and Hubert Giesen. **9.0,** Time, News, Weather, and Programme Announcements. **9.20,** Serenade by the Philharmonic Orchestra. **11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—**5.15 p.m.,** Instrumental Solos: Turkish March (Mozart); Serenade for Violin (Drdla); Pianoforte Solo, La Campanella (Paganini-Liszt); Serenade for Saxophone (Saint-Saëns). **5.30,** Light Music. **5.50,** Talk, followed by Méditation (Massenet). **6.15,** News, Racing Results and Market Prices. **6.25,** Local News. **6.30,** Songs from Sound Films. **6.45,** Military Music. **7.0,** Arias from Opera. **7.15,** Orchestral Concert: Selection from A Midsummer Night's Dream (Mendelssohn); Pastorale d'été (Honegger); Aria (Bach); An den Frühling (Grieg); Minuet (Schubert); Minuet in G Beethoven). **7.45,** Popular Melodies. **8.0,** Concert by the Estudiantina Les Fraters Mandol's. In the intervals, Airs from Operettas. **9.15,** North African News. **9.30,** Concert for Listeners in Morocco. **10.0,** Viennese Music. **10.30 to 11.0,** Programme in English by the I.B.C.. **10.30,** W. Brown-Constable announcing. **10.30,** A Year Ago—Part I: Miss Elizabeth Brown; You forgot your Gloves; Mausie; The King's Horses; Springtime in the Rockies; Elizabeth; Got a Date with an Angel; Goodnight and Pardon Madame. **10.57,** I.B.C. Goodnight Melody. **11.0,** Weather and Announcements. **11.5,** Accordion Solos. **11.15,** Dance Music. **11.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**4.0 to 6.35 p.m.,** See **Turin. 6.35,** Light Music from the Café Dante. **7.0** (approx.) till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**4.0 to 5.0 p.m.,** Tenor and Baritone Song Recital by Giulio Scarinci and Carlo Togliani: Tenor Solo: Pourquoi me reveiller? from Werther (Massenet); Baritone Solo from Le Roi de Lahore (Massenet); Tenor Solo, Cielo e mar from La Gioconda (Ponchielli); Monologue for Baritone from André Chénier (Giordano); Tenor Solo: Tombe degli avi miei, from Lucia di Lammermoor (Donizetti); Baritone Solo, Thou art avanged from Dinorah (Meyerbeer); Tenor Solo from La Traviata (Verdi); Figaro's Cavatina from The Barber of Seville (Rossini); Duet from La Gioconda (Ponchielli). **5.35,** Giornale Radio, Agricultural and Dopolavoro Notes. **6.5,** Giornale Radio. **6.30,** Time, Announcements and Tourist Report. **6.35** (approx.), Gramophone Records of Popular Music. **7.0,** Giornale Radio and Weather. **7.15,** Medical Talk. **7.30,** A Comedy in Three Acts, followed by Concert of Light Music. **10.0,** Giornale Radio. **10.5 to 10.30 (Florence),** Dance Music from the Rajola.

VATICAN CITY

15,120 kc/s, 13.84 metres (Morning), and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—**10.0 to 10.15 a.m.,** Religious Information in Spanish. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**4.0 p.m.,** Concert of Czechoslovak Music. Introduction and Allegro from the Symphony in F for Trio (Tuma); Andantino from the Sonata for Flute, Violin and 'Cello (Mysliveček); Duet for Soprano and Mezzo-soprano: Der Junggesell' und der Mühlbach; Allegro con brio, from the Sonata for Pianoforte, Op. 20 (Worisek); Lullaby from The Kiss (Smetana); 'Cello Solo: Forest Calm (Dvorák); Poem (Fibich); Soprano Solo: Nach Hause (Förster); Pianoforte Solo: Alla Ballata (Novak); Violin Solo: Burlesque (Suk); Mezzo-Soprano Solos: (a) Vision (Kricka), (b) A Mother's Heart (Jeremias); Pianoforte Solo: Lullaby (Vycpalek); Pianoforte Solo: Scherzando (Jirak); Soprano Solo: Spring (Petrzelka); Pianoforte Solo: Prelude and Fugue (Weinberger); Duet from Das listige Füchslein (Janacek); Two Pieces from Ostrinata (Schulhoff); Nocturne for Violin (Mraczek); Reiterlurleske (Finke). **5.25,** Medical Talk. **5.50,** Talk for Workers. **6.15,** Talk: Invisible Things in Nature. **6.40,** Time, Weather and Programme Announcements. **6.50,** Der Jogi vom Wegscheidhof—Musical Play (Paul Löwinger-Hartlweg). **8.30,** Weather and Announcements. **8.45,** Popular Concert by Wilhelm Wacek and his Orchestra. Overture, Let petit Duc (Lecocq); Waltz Song and Marching Song from Sissy (Kreisler); Waltz, Liebesträume (Haupt); Selection from Frühling im Wienerwald (Ascher); Ecstasy (Ganne); Potpourri A. B. C (Komzak); Polka, Lustig herum (Mahr). **9.45,** Music Notes. **9.55,** Concert by Jack Payne and his Band on Gramophone Records.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Fanfare from the Tower of St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Light Music on Gramophone Records. **12.20 p.m.,** Weather Forecast. **12.25 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.30,** Scouts' Report. **2.35,** Programme for Children. **3.0,** Popular Music on Gramophone Records. **3.20,** Talk on History. **3.40,** Talk relayed from **Lwów, 788 kc/s (381 metres). 4.0,** Gramophone Records of Kreisler and Titto Ruffo. **4.40,** Talk. **4.55,** Programme Announcements. **5.0,** Talk on Polish Literature: Kasparovicz. **5.20,** News. **5.25,** Light Music. **6.0,** Miscellaneous Items. **6.20,** Answers to Correspondence. **6.30,** Talk: The Polish Novel. **6.45,** Radio Journal. **7.0,** Choral Concert from **Lwów. 7.50,** Sports Notes. **7.55,** Radio Journal. **8.0,** Pianoforte Recital by B. Wojtowicz: Prelude, Choral and Fugue in B Minor (Franck); L'Ondine (Ravel); Prelude, Sarabande and Toccata (Debussy). **8.45,** Topical Talk. **9.0,** Song Recital by Marie Janowska-Kopezynska. **9.35,** Dance Music. In the Interval at **9.55,** Weather Report and Police Notes.

ZURICH.—See **Schweizerischer Landesseender.**

THURSDAY

MARCH THE THIRTIETH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"Macbeth," from the Artist Designer's Point of View. "Merry-go-Round," feature programme by C. D. Freeman.
LONDON REGIONAL	Act 1 of "Tannhäuser," relayed from Munich.
MIDLAND REGIONAL	Symphony concert from the Town Hall, Birmingham. Scene from "King John" by the Northampton Repertory Players.
NORTH REGIONAL	"Links in the Chain," the nerve-centres of Northern transport and traffic enterprises.
BELFAST	An Irish programme.

ABROAD

BERO-MUNSTER	7 p.m. Brahm's Centenary Concert, from St. Gall. Elly Ney, solo pianoforte.
BRUSSELS (No. 2)	7.30 p.m. Carillon recital by Staf Nees.
BUDAPEST	7.30 p.m. The Opera House Orchestra, conducted by E. Dohnanyi; solo violin, Juan Manen.
COPENHAGEN	7.10 p.m. Concert from the State Broadcasting Building.
HILVERSUM	7.55 p.m. Concert conducted by Dr. W. Mengelberg, from Amsterdam. Solo violin: Samuel Dushkin.
LEIPZIG	6.30 p.m. Beethoven's Ninth Symphony.
RADIO-PARIS	8 p.m. Concert from the Old Conservatoire, conducted by H. Raband.
ROME	7.45 p.m. Symphony concert, conducted by A. la R. Parodi.
SOTTENS	Symphony Concert, conducted by E. Ansermet.
TOULOUSE	8 p.m. Extract from "Lohengrin" (Wagner).

ALGIERS

675.3 kc/s, 364 metres; 13 kW.—**7.0 p.m.,** Financial News. **7.10,** Shipping Notes. **7.15,** Agricultural Talk and Weather Forecast. **7.20,** Talk: Curiosities and Recreations. **7.35,** Symphony Music. **7.55,** News Bulletin. **8.0,** Time Signal. **8.2,** Legal Talk. **8.15,** Qui a bu boira—Play in One Act (Lonwyck). **8.45,** News Bulletin. **8.50,** Request Gramophone Concert. **9.40,** News Bulletin. **9.45,** Organ Solos. **9.55,** News. **10.0,** Concert of Oriental Music. **11.0** (approx.), Close Down.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.0,** Gramophone Concert of Variety Music. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.10,** Dublin Cattle Market Report. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** French Lesson. **7.45,** Literary and Dramatic Talk. **8.0,** The Station Orchestra. **8.45,** Tenor Solos by Peter Lynch. **9.0,** Banjo Solos by R. W. Hope. **9.15,** Soprano Solos by Mollie Phillips. **9.30,** Dramatic and Musical Programme. **10.0,** Gramophone Records of Light Music. **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations and Talk in Catalan. **8.0,** Popular Music on Gramophone Records, followed by News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, and Market Prices. **9.5,** Concert of Popular Music by the Station Orchestra. **9.30,** Flamenco Song Recital. **10.0,** La Pobre Berta—Catalan Play in Three Acts (Adrian Gual). **11.0** (in an interval), News Bulletin. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes, Tourist, and Dopolavoro Report. **7.20,** Giornale Radio and Announcements. **7.35** (approx.), Military Band Concert, conducted by Salvatore Rubino: Overture, Il Guarany (Gomez); Hymn to the Sun and Selection from Iris (Mascagni); Suite, Sigurd Jorsalfar (Grieg); Selection from the First Act of William Tell (Rossini); Bolero for Clarinet (Blemant); Marcia del Decennale (Marineola). In the interval, Talk on History and Announcements. **9.30,** Variety Music on Gramophone Records. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**4.0 p.m.,** Talk. **5.25,** Time and Programme Announcements. **5.30,** Dialogue in French. **6.0,** Orchestral Concert of Light Music. **7.0,** See **Ljubljana. 9.0,** News. **9.5,** Popular Music on Gramophone Records.

BERLIN

KONIGS WUSTERHAUSEN; 183.5 kc/s, 1,635 metres; 60 kW.—**1.0 p.m.,** Gramophone Concert of Instrumental Music **from Berlin (Witzleben). 2.0,** Musical Programme for Children. **2.30,** Weather and Exchange. **2.45,** Reading: Die wunderlichen Nachbarkinder (Goethe). **3.0,** Talks for Women in the Country. **3.30,** Concert from **Berlin (Witzleben). 4.10,** Talk on Philosophy. **4.30,** Sonata No. 3 in D Minor Op. 49 (Weber) by Hans Beltz. **5.0,** Talk: Handicrafts and their Bearing on Popular Culture. **5.30,** Flute and Pianoforte Recital; Sonata in C for Flute and Pianoforte (Ph. E. Bach); Sonata in B Minor for Flute and Pianoforte (Frederick the Great). **5.55,** Weather and Announcements. **6.0,** German for Germans. **6.20,** Agricultural Talk. **6.45,** Hein Butendörp sin Bestmann—Play in Dialect. **7.30,** See **Frankfurt. 9.0,** Weather, News and Sports Notes. **9.45,** Weather Report for shipping. **10.0,** Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**5.5 p.m.,** Recital of Clemens Schmalstich Songs by Georg Hollger (Baritone), with the Composer at the Pianoforte: Ich weiss von Nächten, Eine schwarze Perle, from Der neue Tannhäuser; Lenzlied; Capriccio. Nun darfst du weinen; Gedenken; Siehst du die Sonne. **5.30,** Talk on Wireless. **5.45,** Talk on Pomerania. **5.55,** The Witzleben Station informs its Listeners . . . **6.0,** Topical Talk. **6.10,** Recital of Folk Songs. **6.40,** Talk on the Evening's Musical Programme. **6.50,** A Microphone Visit to an Antique Shop, a Radio Report from **Stettin (1,058 kc/s, 283 metres). 7.10,** Announcements. **7.15,** Mandoline Concert. **7.40,** Hans Pfitzner Concert by the Berlin Philharmonic Orchestra, relayed from the Philharmonie, Soloist, Hans Reimar (Baritone): Two Songs: (a) Zorn, (b) Klage. **8.0,** Concert by the Stettin Teachers' Choral Society, relayed from **Stettin:** Nis Randers—Ballad for Male Voice Choir, Contralto, and Pianoforte (Wapenhensch); Male Voice Choir: (a) Fridericus Rex (Löwe), (b) Alter Gruss (Lorenz), (c) Abendsegen (Wiemann). **8.15,** Pfitzner Concert (contd.): Symphony in C Sharp Minor, Op. 36a. **9.0,** Weather, News, and Sports Notes. **9.10** (approx.), Dance Music by the Oscar Joost Band, relayed from the Eden Pavillon. **11.0,** Hugo Wolf—Radio Picture (Erich Fortner).

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

PTT 986 kc/s, 304 metres; 13 kW.—**6.30 p.m.,** News Bulletin and Exchange quotations. **6.40,** Talk arranged by the International Labour Bureau. **6.55,** Lottery and Charade Results. **7.0,** Talk on Wines. **7.15,** News Bulletin and Weather Report. **7.30,** Gramophone Concert of Light Music. **8.0,** L'Homme qui a vu le Diable—Comedy (Leroux).

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**5.15 p.m.,** Violin Recital by Rudolf Ibl. **5.55,** See **Prague. 6.5,** Talk: Creative Art. **6.20,** See **Prague. 6.30,** See **Brno. 9.30,** See **Prague. 10.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc/s, 253 metres.—12.10 p.m.,** Johann Strauss Concert by the Small Silesian Philharmonic Orchestra, conducted by Hermann Behr. Overture, Karneval in Rom; Shawl Polka from The Arabian Nights; Waltz, Wiener Blut; Mazurka, Lob der Frauen; Gallop, Tritsch-Tratsch. **12.45,** Time, Weather, News and Exchange. **1.5,** Gramophone Concert of Variety Music. **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Topical Talk. **2.50,** Book Review: Soldaten bis Ypern (Herbert Blank). **3.10,** Orchestral Concert, Zigeunerfest (Heykens); Potpourri, Alter Sang, neuer Klang (Wismar); Revue Overture (Lincke); Selection from Die Fahrt ins Glück (Gilbert); Foxtrot, Ich bin nur ein armer Wandergesell; Hungarian Dance Suite from Der Teufelsreiter (Kálmán). **4.0,** Programme for Children. **4.30,** Agricultural Prices. **4.35** (approx.), Max Reger Harmonium Recital by Fritz Kaatz. Benedictus, Op. 59, No. 9, Three Choral Preludes: (a) Aus tiefer Not, (b) O Haupt voll Blut und Wunden, (c) O Welt, ich muss dich lassen; Romance in A Minor; Intermezzo from the First Organ Sonata, Op. 33. **5.0,** Programme to be announced. **5.15,** Talk: The Composer as a Collector: Unfamiliar Incidents from the Life of Johannes Brahms. **5.35,** Talk on Welfare Work. **6.0,** Talk on Bratislava. **6.30,** Weather for Farmers. **6.35** (approx.), Variety Music on Gramophone Records. **7.15,** Orchestral Concert. Soloist: Hans W. Bachmann (Baritone). **8.0,** Announcements. **8.10,** Talk: The Fate of Upper Silesia. **9.10,** Time, Weather, News, Sports Notes and Programme Announcements. **9.30,** Talk in Esperanto. **9.40,** Talk; Rare Specimens in the Breslau Botanical Gardens. **10.0** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by B. Bakala. **4.10,** News for Young People. **4.20,** See **Prague. 4.50,** Educational Talk. **5.0,** Literary Review. **5.15,** See **Prague. 5.25,** German Transmission: News Bulletin and Two Talks. **5.55,** See **Prague. 6.30,** An Opera (Rudolf Karel), relayed from the National Theatre. **9.30,** See **Prague. 10.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**11.0 a.m.,** Concert by the Small Station Orchestra, conducted by P. Leemans: Soloists: M. Wigy (Violin) and M. Doutiez (Pianoforte); Overture, Tartuffe (Gye); Aubade (Caludi); Andalouse (de Taye); Selection from The Merry Widow (Lehar); Czardas for Violin (Monti); Waltz, Tes doux baisers (Macker); Suite of Dances for Pianoforte (Mayerl); Selection from Yes (Yvain). **12 Noon,** Journal Parlé. **12.10 p.m.,** Gramophone Concert: Second Serenade (Toselli); Waltz, Dolores (Waldteufel); Les joujoux (Jacobs), Selection from Les millions d'Arlequin (Drigo); Moment musical (Schubert); Die Spinnerin (Mendelssohn); Selection from Les Noces de Jeannette (Massé); Scottish Dance (Rosse); Waltz No. 2 (Weber); Czardas No. 3 (arr. de Barthet); Concert Waltz, Liebling der Frauen (Boulanger); Serenata (Tarenghi); Music from Sound Films (Borchert). **4.0,** Concert by the Radio Orchestra, conducted by Charles Walpot: March, The Picador (Sousa); Overture, A Waltz Dream (O. Straus); Overture, The Nuremberg Doll (Adam); Musette for Pianoforte and Orchestra (Poot); Piece from Scènes napolitaines (Massenet). **4.30,** Programme for Children. **5.0,** Talk. **5.15,** Suite bergamasque (Debussy), on Gramophone Records. **5.30,** Concert by the Small Station Orchestra, conducted by P. Leemans. **6.15,** Talk for Workers. **7.0,** Tchaikovsky Concert by the Symphony Orchestra: Soloist: M. Delcour (Pianoforte); Slav March; Concerto for Pianoforte and Orchestra; The Pathetic Symphony. In the interval at **7.45,** Talk. **9.0,** Journal Parlé. **9.10,** Gramophone Concert: Part I—Old and Modern Dance Music; Part II—Modern Symphony Music. **10.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**11.0 a.m.,** Gramophone Concert of Variety Music. **12 Noon,** Journal Parlé. **12.10 p.m.,** Concert by the Small Station Orchestra, conducted by P. Leemans; March, Vivat Hungaria! (Kálmán); First Peer Gynt Suite (Grieg); Serenade to Lisette (Caludi); Dance of the Dolls (Turina); Berceuse (Fauré); Aus den Frühling (Grieg); Flemish Divertissement (Vidal). **4.0,** Concert of Flemish Music, with Commentary. **4.45,** Programme for Children. **5.30,** Programme by the J.C.K.A. **6.15,** Book and Film Review. **6.30,** Talk for Women. **7.0,** Concert by the Radio Orchestra, conducted by Charles Walpot. Soloist: M. Rubeau (Songs). K.R.V.O.-Strijdlied (Meulemans); Overture, Chal Romano (Ketelbey); Songs: (a) Air from Martha (Flotow), (b) J'avais un foyer (De Boeck); In the Harbour of Port Said (Armandola). **7.30,** Carillon Recital by Staf Nees: Rubensmarsch en Belaardlied (Benoit); Mijn Moederspraak (Benoit); Le chant des cloches (Van Beers); Minuet (Boccherini); Barcarolle (Mendelssohn); La matinée enfantine de l'Oncle Jean (Ghesquière). K.V.R.O.-Strijdlied (Meulemans). **8.0,** Talk. **8.15,** Orchestral Concert (contd.): Rhapsody in B Minor (Hartung); Rhapsody No. 14 (Liszt); Two Songs (Lehár) from (a) Land of Smiles, and (b) Frederica; Russian March (Ganne). **8.55,** Evening Prayer. **9.0,** Journal Parlé. **9.10,** Extracts from Iolanthe—Operetta (Sullivan), on Gramophone Records. **10.0** (approx.), Close Down.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**4.0 p.m.,** Light Music and Romanian Music by the Dinico Orchestra. **5.0,** News and Time Signal. **5.15,** Light Music (contd.). **6.0,** Talk: Romanian Sculpture. **6.30,** Relay from the Opera House. In the intervals, News.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW.—Programme also relayed from **840 metres** from **7.30 to 11.0 p.m. 4.30 p.m.,** Gramophone Concert of Popular Music. **5.30,** English Lesson. **6.0,** Cigány Concert with Recital of Hungarian Folk Songs. **7.0,** Reading. **7.30,** Concert by the Opera House Orchestra, conducted by Ernst Dohnanyi. Soloists: Juan Manen (Violin). **9.0,** News Bulletin. **9.15** (approx.), Dance Music from the Café New York. **10.15,** Cigány Concert from the Café Emke.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by **Kalundborg, 260 kc/s., 1,153 metres.—11.0 a.m.,** Time and Chimes from the Town Hall. **11.5,** String Ensemble Concert relayed from the Hotel d'Angleterre. **1.0 to 2.0 p.m.,** Interval. **2.0,** Pianoforte Recital by Berl Botschinsky: Rondo in A Minor (Mozart); Moment musical in F Minor (Schubert); Impromptu in A Flat (Schubert). **2.25,** Relay of the General Meeting of the Industrial Society. **2.50,** Orchestral Concert from the Wivex Restaurant. **4.0,** Programme for Boys. **4.40,** Exchange and Fish Market Prices. **4.50,** Talk on Dentistry. **5.20,** English Lesson. **5.50,** Weather Forecast. **6.0,** News. **6.15,** Time Signal. **6.16,** Talk: Stoves or Central Heating? **6.45,** Danish Lesson. **7.10,** Twenty-fifth Concert relayed from the State Broadcasting Building; The Station Symphony Orchestra, conducted by Emil Reesen; Soloists, Duolina Giannini (Songs) and Louis Jensen (Cello): Symphony in D (the London) (Haydn); Aria from Alceste (Glück); Concerto in G Minor for 'Cello (Handel). Ten minute Interval. Overture, La Vestale (Spontini); Song from La Vestale (Spontini); 'Cello Solos: (a) Grave (Sammartini), (b) Allegro (Guerrini); Italian and Spanish Folk Songs: (a) In mezzol mar, (b) Manella mia, (c) Cielito lindo. Part One from Impressioni dal vero (Malipiero). **9.15,** News. **9.30,** Reading of Japanese Poetry. **9.50,** Dance Music from the Ritz Restaurant. In the interval at **11.0,** Time and Chimes from Town Hall. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—**6.0 p.m.,** Answers to Correspondents. **6.15,** Miscellaneous Items and Announcements. **6.30,** See **Warsaw. 7.0,** Concert of Polish Music. **8.30,** Dramatic Programme relayed from **Wilno, 533 kc/s (563 metres). 9.15,** See **Warsaw. 10.0,** Light Music from the Pavillon Restaurant. **11.0,** Fanfare from Notre-Dame.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11.0 a.m.,** Popular Music on Gramophone Records. **11.30,** News Bulletin. **11.45,** Programme for Children. **5.30 to 8.0,** Programme in English by the I.B.C. (These times are subject to alteration.) **5.30,** Concert for Working Listeners: Molly on the Shore; Sicilana; Song, For you alone; Cherry Ripe; Gavotte, Mignon; Song, I hear a Thrush at Eve; Andante cantabile; Orientale. **7.0,** Concert for Brighton Listeners: The Keys of Heaven; Give me thy Hand, O Fairest; Pianoforte Solo, The Bees Wedding; A Paradise for two; Lightly, lightly; Pianoforte Solo, Hunting Song; Homing; O lovely Night. **7.30,** Concert for Hove Listeners: The Cuckoo Waltz (Jonasson); That tiny Teashop (Raymond); The Toymaker's Dream (Golden); Argentina amor (Blum); The Clock is playing (Blaauw); Potpourri, Dubinuschka (arr. Alexander); Bells across the

Meadows (Ketelbey). 8.0, Answers to Correspondence and News. **8.30 to 10.0,** Programme relayed from **Rouen.** 8.30, Talk, Book-keeping Lesson and Literary Review. 9.0, Concert by the Fratelli Colluto Jazz Band. 10.0 till Close Down, Programme in English by the I.B.C. (These times are subject to alteration.) 10.0, Dance Music: It's great to be in Love; I idolise my Baby's Eyes; Flame of Desire; You call it Madness, but I call it Love; Mona Lisa; You try Somebody else; By the Fireside; Ecstasy; I'm sorry, Dear; Falling in Love again; One little Quarrel; Life is just a Bowl of Cherries; The Song of the Islands; Bend down, Sister; Save the last Dance for me. 11.0, Organ Recital: Overture, Poet and Peasant (Suppé); Le Cygne (Saint-Saëns); The Storm (Shaw); To a wild Rose (Macdowell); Prayer to Our Lady and Toccata from the Gothic Suite (Boëllmann). 11.30, Songs and Orchestral Music: Autumn Leaves (Pepper); The Crocodile; Pretty Polly Perkins; Duet, The Battle Eve; Duet, Come to the Fair; Kashmiri Song and Temple Bells (Woodforde-Finden); Liebesfreud (Kreisler). 12 **Midnight,** Variety Programme: The laughing Scot; Mammy is gone; The Golden Bird; My Ohio Home; The Laughing Band; Mrs. 'Orsfield 'as 'er fortune told; Ragtime Medley. **12.30 a.m. (Friday),** Duets: Down the Lane to Home sweet Home; Dreaming of my Indiana Sweetheart; Say a little Prayer for me; A Night of Happiness; My Baby just cares for me; You'll be mine in Apple blossom Time; My Heart belongs to a Girl; The Wedding in the Ark. 12 **Midnight,** Country Dances: Irish Set Dance; Russian Ballet; Barn Dance; The Midshipmite; Reels; Strip the Willow; Strathspeys; Petronella. 1.30 **(Friday),** Songs: Dancing with Tears in my Eyes; It happened in Monterey; My Song; The Ragpickers' Party; Down the Lane to Home sweet Home; Ragamuffin Romeo; Who am I? 2.0, Dance Music: Lovable; Put that Sun back in the Sky; When we're alone; Where's Bill Baily?; There's another empty Saddle; Bahama Mama; Can't we talk it over; If you were only mine; Moon; You're my everything; Let's put out the Lights and go to sleep; Moonlight, the Danube, and you; Mad about the Boy; The Younger Generation. 2.57, I.B.C. Good-night Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW. Relayed by **Gassel, 1,220 kc/s, 245.9 metres.**—**2.30 p.m.,** Programme for Children. 3.50, Economic Notes. 4.0, See **Langenberg.** 5.15, Economic Notes. 5.25, Talk: What the Stahlhelm proposes in the way of Self-Help. 5.50, Talk. 6.15, Time, Programme Announcements, Weather and Economic Notes. 6.20, Topical Talk. 6.30, Hans-Christophe Kaergel discusses his own Works. 6.45, The Royal Coloniser—A Tour of Inspection by Frederick the Great in 1779—Radio Sequence (Hermann Burger). 7.30, Wagner Concert by the Station Orchestra: Overture, Rienzi. Ballet Music from Rienzi; Bacchanale from Tannhäuser; Siegfried-Idyll; Overture, The Flying Dutchman; Homage March. 9.0, Time, News, Weather and Sports Notes.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW.—Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**6.0 p.m.,** Temperance Talk. 6.25, Weather. 6.30, Rudolf Kintmann reads from his own Works. 7.0, Recital of Songs, Arias, and Duets by Maria Cebotari and Julius Patzak, relayed from the Convent Garden. Maria Cebotari: Four Songs: (a) Mondnacht (Schumann), (b) Ins Freie (Schumann), (c) Kling, meine Seele (Strauss), (d) Ständchen (Strauss). Julius Patzak: Four Songs: (a) Liebeslotschaft (Schubert), (b) Der Musensohn (Schubert), (c) Hat dich die Liebe berührt (Marx), (d) Venetian Lullaby (Marx); Maria Cebotari and J. Patzak: Two Songs: (a) Er und Sie (Schumann), (b) Tanzliedchen (Schumann). 7.50, News. 8.0, Frederick the Great at Leuthen—Historical Drama (Julius Bernhard). 9.15, Time, Weather, Announcements, Sports and Police Notes. 9.25, Topical Talk. 9.35, Concert of Dances by the Chamber Orchestra conducted by Gerhard Maass. Soloists: Gerhard Maass and Gerhard Gregok (Pianoforte). In an interval at 10.20, Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.**—**12.5 p.m.,** Light Music on Gramophone Records. In the interval at **12.20 p.m.,** News. **1.30 to 2.0,** Interval. 2.0, Agricultural Prices and Exchange Rates. 2.30, Talk for Young People. 3.8, Talk: Toys in the Life of a Child. 3.30, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Anacreon (Cherubini); Legend (Dvorák); Waltz (Dvorak); Selection from Djamileh (Bizet); Hungarian Fantasia (Grünfeld); Waltz, Mariana (Joh. Strauss); Overture, Joan of Arc (Verdi). 4.45, Talk: Hints on Careers—German Engineers in China. 5.15, Agricultural Prices. 5.30, Agricultural Talk. 5.55, Introductory Talk to the 7.45 p.m. Transmission to be given on Friday, March 31. 6.15, English Lesson for Beginners. 6.40, Weather and News. 6.45, See **Frankfurt.** 7.30, Dances and Dance Songs from Five Centuries—Concert by the Freiburg Chamber Trio for Old Music. 8.10 (from **Danzig**). St. Florian—a Sequence of Reports, Statements and Songs about Fire and Methods of extinguishing it (Frotscher and Rühle). 9.10, Weather, News and Sports Notes.

HILVERSUM

(Announced HUIZEN), 1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—**11.55 to 1.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.): Concert by the K.R.O. Orchestra, conducted by J. Gerritsen. 1.40 till Close Down, Programme of the Christian Radio Society (N.C.R.V.). 1.40, Handicrafts Lesson. 2.40, Programme for Women. **3.10 to 3.40,** Interval. 3.40, Bible Reading and Sacred Music. 4.40, Violin Recital by P. Hartvelt: Adagio from the Sonata in C Minor (Bach); Sonata Op. 79 (Beethoven); Preghiera (Martini); Prelude and Allegro (Pugnani-Kreisler); Gramophone Records; Printemps (Milhaud); Leme from Sandades do Brazil (Milhaud); Pianoforte Solo: Spanish Suite (Albéniz); Slav Dance No. 1 in G Minor (Dvorák-Kreisler). 5.25, Handwork for Young People. 5.55, Talk. 6.25, Dressmaking Lesson. 6.40, Press Review. 7.10, Police Notes. 7.25, Popular Music on Gramophone Records. 7.40, Concert by Two Choirs and a Wind Instrument Quartet: Hymn (Gluck); Beati Mortui (Mendelssohn); Song (Beethoven); Hoe lief' lijk zyn op de bergen (Richter); Selig sind die da Leid tragen (Schön); The Lord is my Shepherd (Kleijn); Ist es war (Mendelssohn); Ecce quomodo moritur (Händel); Frühlingsnacht (Schubert); Address; Five Songs; Ave verum corpus (Mozart); Preis und Anbetung (Rinck); Preist den Herrn und gibt ihm Ehre; De Ruine (Brandts-Buys); Wiegenlied (Brahms). 9.40, Talk. 10.10, News Bulletin. 10.20, Popular Music on Gramophone Records. 11.10 (approx.), Close Down.

HORBY.—See **Stockholm**

HUIZEN

Announced **HILVERSUM, 160 kc/s, 1,875 metres;** 8.5 kW. Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). —**11.41 a.m.,** Concert by the Wireless Orchestra, conducted by Nico Treep: March, Songs of the Brave (Bidgood); Overture, Le cheval de bronze (Auber); Ballet Suite from Hamlet (Thomas); Gramophone Records; Waltz, Moonlight on the Alster (Fetras); Czardas from Der Geist des Wojewoden (Grossman); Magicians in the Far East (Lindemann); Krakoviak (Leopold); Selection from Frederica (Lehár); Gramophone Records; Harlequinade (Blumann); Chaplinade (Fischer); Russian Song (Paladilhe); L'amour brisé (Gillet); Soldiers in the Park (Monckton). **1.40 p.m.,** Talk for Women. **2.10 to 2.25,** Interval. 2.25, Popular Music on Gramophone Records. 2.40, Needlework Lesson. 3.25, Light Music on Gramophone Records. 3.40, Programme for Hospitals. 4.10, Pianoforte Recital by Willem Zonderland: Suite for Harpsichord (Voormolen); Waltzes (Schubert-Dohnanyi); Concert Etude, The Hunt (Sauer); Waltz Paraphrase on Wienerblut (Strauss-Schäfer). 4.40, Programme for Children. 5.10, Organ Recital by Pierre Palla, relayed from the Kurhaus, Scheveningen, with Lotte Fernandez (Soprano) and Boris Lensky (Violin). Organ Solo: Selection from Il Trovatore (Verdi); Songs with Organ Accompaniment: (a) Hungarian Song (Brodsky), (b) Song (Rotter-Jurmann), (c) My Greetings (Wilczynski-Grothe), (d) I dream of a Night of Tales (Rust); Violin and Organ: (a) On Wings of Song (Mendelssohn-Achron), (b) Love Song (Maya), (c) Old German Gavotte (Bohm); Organ Solo: Musica proibita Gastaldon); Soprano and Organ: (a) Chiquita (Wayne), (b) Pagan Love Song (Brown), (c) Kashmiri Love Song (Woodforde-Finden), (d) Only a Rose (Friml); Organ Solos: (a) Variations on 's komnt ein Vogel geflogen (Siegfried Ochs), (b) Aufzug der Stadtwache (Jessel), (c) Rustic Dance (Howell); Violin and Organ: (a) Song (Tosti), (b) Serenade, Torna a Surriento (de Curtis), (c) Silvery Rain (Linsky); Organ Solo: Overture, Poet and Peasant (Suppé). In the interval at **6.10,** Sports Talk. 7.10, English Lesson. 7.40, Time and News. 7.45, Popular Music on Gramophone Records. 7.55, Symphony Concert by the Concertgebouw Orchestra, relayed from the Concertgebouw, Amsterdam. Conductor: Willem Mengelberg. Soloist: Samuel Dushkin (Violin). Passacaglia (Bagh-Respighi); Concerto for Violin and Orchestra (Stravinsky); Gramophone Records; Symphony No. 4 in F Minor (Tchaikovsky). 10.10, Concert of Light Music by the Kovacs Lajos Band. Soloist: Bob Scholte (Songs). In an interval at 10.40, News. 11.40 (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

NICE, 1,202 kc/s, 249.6 metres; 0.8 kW.—**9.30 to 10.30 p.m.,** Programme in English by the I.B.C. H. K. Hitchcock announcing.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**6.15 p.m.,** Announcements and Gramophone Records. 6.25, Report for Boy Scouts. 6.30, See **Warsaw.** 10.0, Dance Music from the Café Astoria.

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—**6.30 p.m.,** Popular Concert. 7.0, Talk: Tin and its Products. 7.20, Popular Programme. 7.40, Sports Notes. 7.50, Economic Review in Esperanto. 8.10, Evening Concert. 9.30 (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by **HELSINKI, 815 kc/s, 368.1 metres.**—**4.0 p.m.,** Trio Concert. 4.25, Talk. 5.15, Talk. 5.40, Song Recital by Inkeri Tuominen. 6.5, Talk. 6.30, Concert by the Station Orchestra, conducted by Toivo Haapanen. Soloist: Erik Cronvall (Violin). Overture, Puppenspiel (Weinberger); Small Suite (Madetoja); Song from Prince Igor (Borodin); Violin Solo: Fantasia appassionata (Vieuxtemps); Swedish Song and Norwegian Wedding March (arr. Sandby); Korsholm (Järnefelt). 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert: Auf rauhen Pfaden zu den Sternen (Urbach); Overture, Waldmeister (Joh. Strauss); Selection from Das Nachtlager in Granada (Kreutzer); Old Russian Dance Pictures (Clemns); Indian Suite, Part II (Lüling); Selection from The Czarevitch (Lehar); Waltz, Ich bin ein Kind vom Rhein (Zeller). In the interval at **1.0 p.m.** (approx.), Announcements. 1.30, Sponsored Programme with Gramophone Records. 2.30, Economic Notes and Time. 2.50, Programme for Children. 3.20, Talk for Women. 4.0, Concert of Chamber Music: String Quartet in E Flat, Op. 127 (Beethoven); String Sextet in B Flat, Op. 18 (Brahms). 5.20, Book Review. 5.45, Weather, Time, Economic Notes, and Sports Results. 6.0, Report on the Life of a Racehorse, relayed from the Schlenderhan Stud (on Gramophone Records). 6.30, Talk on Rhenish Westphalia and the German Hanseatic League. 6.55, Announcements. 7.0, Orchestral and Choral Concert; Soloist, Peter Graef (Viola); Orchestra, Die Geschopfe des Prometheus (Beethoven). Mixed Choir: (a) Abendlied (Trunk), (b) Die Sterne durch den Himmel gehn (v. Othegraven, (c) Japanisches Regenlied (Unger). (d) Auf dem Canale Grande (Lemacher); Orchestra: Music from Don Giovanni (Mozart); Male Voice Choir and Viola: Der stille Hof (Siegl); Orchestra: (a) Träume (Wagner), (b) Albumblatt (Wagner); Women's Choir: (a) Der Weiher (Koch), (b) Gute Nacht (Koch); Orchestra Music: Ballet Music from les petits riens (Mozart); Mixed Choir: (a) Folk Song, Die Vöglein (arr. v. Othegraven), (b) Folk Song Jan Hinnerk (arr. Ochs); Orchestra Music: Variations on 's Kommt ein vogel geflogen (Ochs). 9.5, Announcements and Sports Notes. 9.30, Serenade and Dance Music, conducted by Eysoldt. 11.0 (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by **Dresden, 941 kc/s, 319 metres.**—**11.5 a.m.,** Concert of Light Music on Gramophone Records. **12 noon,** News weather and Time. **12.15 p.m.,** Gramophone Concert: Melody (Gluck); Canzonetta (d'Ambrosio); March from Judas Maccabeus (Handel); Chaconne (Handel); Minuet (Bocherini); Minuet from the Quartet in E (Dittersdorf); Benedictus (di Lassa); Andante and Allegro assai from the Brandenburg Concerto No. 2 in F (Bach); Gagliarda (Schmid); Allegro from the Organ Concerto No. 4 (Händel); After the Concert, Exchange Quotations. 1.0, Film Review. 1.5, Talk: Housing Schemes for the Unemployed. 2.0, Programme for Children. 2.35, Exchange and Market Prices. 3.0, Concert by the Emdé Orchestra: Overture, the Land of Smiles (Lehár); Waltz, Künstlerträume (Vollstedt); Wandersuite (Krümann); Stolzenfels am Rhein (Meissner); March of the Wooden Dolls (Richter); The Minstrels (Amadei); Selection from The Dubarry (Millocker-Mackeben); Träumende See (Eilenberg); Paraphrase on Noch sind die Tage der Rosen (Baumgartner); Potpourri of Tyrolese Songs and Dances (Fetras); March, Flitsch (Eduard Wagner). 4.30, Weather and Time. 4.50, Exchange Quotations. 5.0, Health Talk. 5.15, Notes on Taxation. 5.30, Spanish Lesson. 5.50, The Leipzig Station informs its Listeners. 6.0, Talk: Fifty Years of Financial Reform. 6.30, The Ninth Symphony (Beethoven), by the Gewandhaus Orchestra, Choir and Soloists. 8.0, News. 8.10, Der Bürgergeneral—Comedy (Goethe), with Incidental Music by Heinz Fritzsche. 9.10, News Bulletin. 9.30 (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.30 p.m.,** Talk on Geology. 7.0, Choral Concert, relayed from **Trbovlje.** 9.0, Time and News. 9.5 (approx.), Concert of Light Music.

LWOW

788 kc/s, 381 metres; 16 kW.—**6.5 p.m.,** Miscellaneous Items and Light Music on Gramophone Records. 6.30, See **Warsaw.** 10.0, Dance Music relayed from the Bagatela Theatre. 11.0 (approx.), Close Down.

LYONS

LA DOUA, Call PTT, 644 kc/s, 465.8 metres; 1.5 kW.—**6.30 p.m.,** Radio Gazette for Lyons and the South East. 7.30, Concert conducted by Gaston Billet. Soloists: Mme. Dubost (Soprano) and Jean Marguerite (Tenor). News after the Concert.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s., 30.43 metres; 20 kW.—**10.30 p.m.,** Popular Concert. 10.45, Radio Chronicle. 11.0, Popular Concert (contd.). 11.35, Talk. 11.40, Light Music. **12.0 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, Programme for Children and Request Gramophone Records. 8.15, News Bulletin and Political Review. **8.30 to 9.0,** Interval. **9.0,** Linguaphone English Lesson. **9.30,** Chimes, Time Signal, Political Review, Scientific Talk, and Band Concert, relayed from the Hotel Nacional. 11.45, News Bulletin. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**5.30 p.m.,** German Transmission: Two Talks. 5.55, See **Prague.** 6.30, See **Brno.** 9.30, See **Prague.** 10 (approx.), Close Down.

MOSCOW

230 kc/s, 1,304 metres; 100 kW.—**4.30 p.m.,** Popular Music on Gramophone Records. 5.30, Concert of Music by Bach, Brahms, and Beethoven, relayed from the Radio Theatre. 8.0, Review of the Week and Answers to Correspondents in French.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**4.0 p.m.,** Orchestral Concert: Fest-Ouvertüre (Lortzing); An den Frühling (Grieg); Selection from The Merry Widow (Lehar); Waltz, Marienklänge (Jos. Strauss); Le Moulin (Gillet); March, Dem Lenz entgegen (Blankenburg). 5.15, Talk: The Protection of the Bavarian Homeland. 5.35, Agricultural Talk. 5.55, Time, Weather and Agricultural Report. 6.5 (from **Nürnberg**), Talk: German Soldiers in Foreign Pay. 6.25, Introductory Talk to the following Transmission. 6.35, The Barber of Bagdad—Comic Opera in Two Acts (Cornelius), relayed from the National Theatre. 8.50, Concert by a Schrammel Trio: March, Zum Rendezvous (v. Blon); Waltz (Waldteufel); Two Songs: (a) 's Millimadel (Thoms), (b) Erst sagt man A (Müller); Upper Bavarian Ländler; March, Die Ehrenwache (Lehnhardt). 9.20, Time, Weather, News and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 622 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**4.0 p.m.,** Orchestral Concert, relayed from the Grand Hotel: Overture, Die Fledermaus (Joh. Strauss); Waltz, Toujours ou jamais (Waldteufel); Selection from Die toten Augen (d'Albert); Romance (Gustavson); Musette (Offenbach); Three Spanish Dances (Moszkowski). 5.0, German Lesson. 5.30, Religious Address. 6.0, Announcements, Weather and News. 6.30, Agricultural Report. 7.0, Time Signal. 7.1, Austrian Programme, arranged by the Norwegian Austro-German Society, relayed from the University: The Blue Danube (Joh. Strauss), sung by a Boys' Choir, conducted by J. Berg-Hansen. Talk by Stefen Zweig: The Poetry of History. 7.45, Concert by the Cecilia Choir, relayed from St. Saviour's Church. 8.45, Weather and News. 9.5, Topical Talk. 9.20 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

(ITALY), ENTE ITALIANO AUDIZIONI RADIOFONICHE, 558 kc/s, 537.6 metres; 3 kW. Transmits at intervals from **7.0 p.m.**, Dopolavoro Notes, Agricultural Report, and Giornale Radio. **7.20,** Popular Music on Gramophone Records. **7.30** (in an interval), Time Signal and Announcements. **7.45,** Light Orchestral Concert, with Songs and Variety Items. **8.30,** A Florentine Tragedy—Play in One Act (Oscar Wilde). **9.0,** Song Recital. **9.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.,** Talk on the Theatre. **6.0,** Le Journal Parlé. **7.20,** Weather Report. **7.30,** Gramophone Concert: Concerto in D for Violin and Orchestra (Beethoven); Selection from Il Guarany (Gomez); The Old Steeple (Colas); Song from Les Brigands (Offenbach); Le Pas des écharpes (Chaminade); Estrellita (Davis); Song from La Poupée (Audran); Songs (Eblinger); Waltz Potpourri (Robrecht); Foxtrot Potpourri (Robrecht); Melody (Rathke); Piece. **9.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**5.45 p.m.,** Le Journal Parlé. **6.0,** Programme for Children. **6.30,** Variety Music on Gramophone Records. **7.0,** Agricultural Talk. **7.30,** Simili—Play in Three Acts (Roger-Marx). In the interval at **8.40,** Fashion Review. **9.30,** News Bulletin.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**5.45 a.m.,** Physical Culture. **6.30,** Weather and Physical Culture (contd.). **6.45,** The Nursery (Inghelbrecht) on Gramophone Records. **7.0,** Press Review and Weather. **11,** Protestant Address. **11.30,** Orchestral Concert: Orchestral Suite, At the Circus (Armandola); Selection from White Horse Inn (Stolz-Benatzky). **12 Noon,** Exchange, News, and Weather. **12.5 p.m.,** Pianoforte Recital by Albert Lévêque; Choral (Bach); Preludes and Fugues from Das wohltemperierte klavier (Bach); At the Fountain (Schumann); Romance in B Flat (Schumann); Overture to the Cantata in D (Bach). **12.30,** Exchange. **12.35,** Orchestral Concert (contd.): Selection from The Vagabond King (Friml); Scènes hongroises (Massenet). **1.0,** Exchange. **2.45,** Exchange and Market Prices. **4.45,** Agricultural Report. **5.0,** Address by the Reverend Marc Boégner, relayed from the Reformed Church, Passy: Prayer and Communion with Jesus Christ. **5.30,** Market Prices, Weather, and Agricultural Report. **6.0,** Talk on Poetry: Belgian Symbolism. **6.20,** Orchestral Music: Scènes rustiques (Gillet); Two Waltzes (Dvorák); Chanson bretonne (Chaminade); Havanaise (Février). **6.45,** Commercial Prices, News, and Review of the German Press. **7.0,** Literary Programme on Gramophone Records: Les vieux (Dandet); Scene from Les précieuses ridicules (Molière); Scene from The Barber of Seville (Beaumarchais); Two Poems (Paul Fort): (a) Le dit du pauvre vieux, (b) La complainte du cheval blanc; Three Readings (Franc-Nohain): (a) Les chapeaux du premier Janvier, (b) Le porc-épic, (c) Une locomotive regarde une vache en passant. **7.30,** News, Weather, and Sports Notes. **7.40,** Review by Dominique Bonnaud. **7.45,** Eine kleine Nachtmusik (Mozart) on Gramophone Records by the Berlin Opera House Orchestra. **8.0,** Concert conducted by Henri Rabaud, relayed from the Conservatoire: Selection from A Midsummer Night's Dream (Mendelssohn); Gesang der Geister über den Wasser, Op. 167 (Schubert); Scherzo, Queen Mab (Berlioz); Cantata, Herr gehe nicht in's gericht (Bach); Fifth Symphony (Beethoven).

PITTSBURGH

WESTINGHOUSE ELECTRIC, KDKA, 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK on 48.86 metres and 25.27 metres.** (See Short-Wave List.)—**9.0 p.m.,** Work-a-day Thoughts. **9.5,** Business News. **9.15,** Ballroom Promenade. **9.30,** Weather Report. **9.32,** Market Reports. **9.45,** Blue Ridge Buddies. **9.57,** David Lawrence Dispatch. **10.0,** Programme to be announced. **10.15 to 11.15, New York** Relay. **10.15,** Dick Daring. **10.30,** The Singing Lady. **10.45,** Little Orphan Annie. **11.0,** Our Daily Food—by George Rector's Cooking School. **11.15,** Time Signal. **11.16,** Weather Report. **11.17** Teaberry Sport Review. **11.22,** Press News Reeler. **11.27,** Strange Facts. **11.29,** Temperature Report—Philadelphia Company. **11.30,** KDKA Orchestra. **11.45,** Today's News, by Lowell Thomas. **12 Midnight,** Pepsodent Amos 'n' Andy, from **New York. 12.15 a.m. (Friday),** Concert Footlights. **12.45,** The Townsend Murder Mystery. **1.0 to 4.1, New York** Relay. **1.0,** Captain Diamond's Adventures. **1.30,** Time Signal and Rin Tin Tin Thrillers. **1.45,** Thurston, the Magician. **2.0,** Death Valley Days. **2.30,** Wayne King's Orchestra, with Lady Esther. **3.0,** Carson Robinson's Pioneers. **3.15,** Vic and Sade. **3.30,** Ilomay Bailey and Orchestra. **3.45,** Prof. McLallen, Sara and Sassafras. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.13,** KDKA Artist Bulletin. **4.15,** Press Last Minute News Flashes. **4.20,** Bertha Schmid (Soprano). **4.30,** Josef Lhevinne (Concert Pianist), from **New York. 5.0,** Smith Ballew and his Orchestra. **5.15,** KDKA Artist Bulletin. **5.17,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**3.10 p.m.,** See **Brno. 4.10,** Talk on Economics. **4.20,** Programme for Children. **4.50,** Variety Music on Gramophone Records. **5.5,** Talk on Gardening. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission: Agricultural Talk. **5.55,** News. **6.5,** English Conversation. **6.20,** Talk on the following Transmission. **6.30,** See **Brno.** In the intervals at **8.0** and **9.0,** Time Signals. **9.30,** News Bulletin. **9.45,** Light Music on Gramophone Records. **10.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **LAUSANNE, 442 kc/s, 680 metres;** and **GENEVA, 395 kc/s, 760 metres.—5.0 p.m.** (from **Lausanne**), Sports Talk. **5.20** (from **Geneva**), Esperanto Lesson. **5.35** (from **Lausanne**), Italian Lesson. **6.0** (from **Geneva**), Weather Forecast, News Bulletin and Announcements. **6.15** (from **Lausanne**), Answers to Correspondence. **6.30** (from **Geneva**), Theatre Notes. **7.0** (from **Geneva**), Talk: The Work of the League of Nations. **7.20** (from **Geneva**), Introductory Talk to the following Transmission. **7.30** (from **Geneva**), Symphony Concert by the Station Orchestra. Conductor: Ernest Ansermet. In an interval at **8.15** (approx.), News Bulletin and Weather Forecast. **9.15** (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—**8.30 p.m.,** Weather Report. **8.40,** Musical Programme and Announcements. **9.0,** Chimes. **9.2,** News Bulletin. **9.30,** Reading. **10.0,** Concert by the Station Quartet, with Violin Solos by Georg Takács.

RIGA

572 kc/s, 525 metres; 15 kW.—**6.5 p.m.,** Concert of Love Waltzes, conducted by J. Medins: Mein Lebenslauf ist Lust und Lieb (Joh. Strauss); Je t'aime (Waldteufel); Liebesfreud (Kreisler); Liebesleid (Kreisler); Liebesquelle (Vollstedt); Verschmähte Liebe (Lincke); Waltz from Gipsy Love (Lehár). **7.0,** News Bulletin. **7.20,** Latvian Songs. **7.40,** Concert of Chinese and Japanese Music, conducted by J. Medins: In the Land of the Setting Sun—Japan (Yoshitomo); in a Chinese Temple Garden (Ketelbey); In a Chinese Theatre (Dreyer); The Vision of Fuji San (Ketelbey); Shanghai Cradle Song (Jones); A Garden Festival in China (Niemann). **8.0,** Weather and News. **8.30,** Light Music. **9.0** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

1RO, 680 kc/s, 441 metres; 50 kW.—Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,810 kc/s, 25.4 metres. 12 Noon,** Time and Announcements. **12.2 p.m.,** Humorous Talk. **12.5 to 1.15,** Concert from **Turin.** In the interval from **12.30 to 12.45,** Giornale Radio and Exchange. **3.45,** Children's Radio Review. **4.10,** Announcements. **4.15,** Exchange and Giornale Radio. **4.30 to 5.15,** Orchestral Concert: Overture, Martha (Flotow); Melody (Carducci); Selection from La Wally (Catalani); City (Ramponi); Serenata spagnola (Grieco); Selection from Frühlingsluft, (Jos. Strauss); Meditation (Mamo); Invanka (Ansaldo). **5.45 (Naples),** Shipping and Sports Notes. **5.55,** Agricultural and Dopolavoro Notes. **6.15,** Giornale Radio. **6.30,** Time and Announcements. **6.32,** Talk: Preparation for the Holy Year. **7.2,** Talk. **7.15,** Gramophone Records of Light Music. **7.30,** Sports Notes and Tourist Report. **7.45,** Symphony Concert, conducted by Armando La Rosa-Parodi. Soloist: Germano Arnaldi (Pianoforte). Morning from the Summer Concerto (Pizzetti); La Mer—Three Pieces (Debussy); Talk on Literature and Art; Omaggio a Vivaldi (La Rosa-Parodi); Interlude from Dafni (Mulé); Overture, Oberon (Weber); Pianoforte Solos: (a) Two Pieces (Korngold), (b) Ronda d'Ariele (Korngold); Seventh Symphony in A, Op. 92 (Beethoven). **9.55,** News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** and by **W2XAD** (see Short-Wave List).—**12 Midnight,** Southern Jubilee Quartet. **12.15 a.m. (Friday),** Stock Reports. **12.30 to 3.0, New York** Relay. **12.30,** Donald Novis (Tenor). **12.45,** The Goldbergs. **1.0,** Fleischmann Hour. **2.0,** Capt. Henry's Show Boat. **3.0,** Lucky Strike Hour, followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres,** and **BERNE, 1,220 kc/s, 245.9 metres.—11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40** (from **Basle**), Orchestral Concert. **12.35 p.m.,** Weather and Exchange. **12.40 to 2.30,** No Transmission. **2.30** (from **Basle**), Talk: The Swiss Poetess. **3.0** (from **Basle**), Swiss Music on Gramophone Records. **4.30,** Weather. **4.35 to 5.30,** No Transmission. **5.30** (from **Basle**), Talk: Johann Lavater's Psychological Works. **6.0,** Time, Weather and Announcements. **6.15** (from **Basle**), Italian Lesson. **7.0,** Brahms Centenary Concert, relayed from the Concert Hall, St. Gallen. Soloist: Elly Ney (Pianoforte). **9.0** (approx.), Weather, News and Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

RADIOTJANST (SASA), 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—4.0 p.m.,** Weather Report. **4.5,** Service, relayed from **Karlskrona, 1,530 kc/s, 196 metres. 4.20,** Programme for Children. **4.45,** Light Music on Gramophone Records. **5.40,** Talk. **5.55,** Song Recital. **6.15,** Weather and News. **6.30,** A Dialogue. **6.45,** Recital of Popular Songs by Lillan Grill. **7.0,** A Discussion on International Languages—Esperanto, Ido, and others. In the interval at **8.45,** Weather and News. **10.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**10.30 a.m.,** Gramophone Concert of Variety Music. **11.0,** Orchestral Concert conducted by Maurice de Villers: Turkish March (Mozart); Overture, The Ruins of Athens (Beethoven); Orchestral Suite, A Midsummer Night's Dream (Mendelssohn); Military March (Schubert). **11.45,** News. **12 Noon,** Time and Exchange. **12.5 p.m.,** Orchestral Concert of Music by Reynaldo Hahn. Soloists: Grégoire (Violin) and Pogoda (Pianoforte). Overture, Mozart. Solos for Violin and Pianoforte: (a) Romance, (b) Noeturne; Orchestral Suite, La Fête chez Thérèse. **1.0,** Programme for Children. **2.0 to 3.15,** Interval. **3.15,** French Elocution Lesson. **3.30,** Programme for Children relayed from **Bordeaux-Lafayette. 5.0,** Talk in German. **5.15,** Talk for Women in French. **5.30,** Orchestral Concert conducted by Roskam: Andalusian March (Krier); Waltz, Galanterie (Leopold); Two Manchurian Sketches (Glan); Prelude to Kunihild (Kistler); Selection from The Merry Wives of Windsor (Nicolai); Geburtstags-tändchen (Lincke); Selection from Pas sur la bouche (Yvain); March, Manhattan Beach (Sousa). **6.30,** Time and News. **6.45,** Light Music on Gramophone Records. **7.20,** Lottery Results. **7.30,** Concert by the Theatre Orchestra, relayed from **Metz:** Overture, Orphens in the Underworld (Offenbach); Selection from (a) Mignon (Thomas), (b) La fille de Madame Angot (Lecocq); Adagietto from L'Arlésienne (Bizet); Selection from Werther (Massenet); Overture, Mirella (Gounod); Violin Solo: Selection from Paganini (Lehar); Canzonetta (Razigade); Bohemian Dance from Carmen (Bizet). **9.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by **Freiburg, 527 kc/s, 570 metres.—12.30 p.m.,** Gramophone Concert: Fantasia, Der Frühling naht mit Brausen; Fantasia on the Strauss' Waltz Frühlingsstimmen; Frühlingstraum (Schubert); An den Frühling (Grieg); Schön Rosmarin (Kreisler). **1.0,** Concert arranged by the Post Office. **1.30,** Spanish Lesson. **2.0,** English Lesson for Beginners. **2.30,** See **Frankfurt. 3.30 to 4.0,** Interval. **4.0,** See **Langenberg. 5.15,** Time, Weather and Agricultural Report. **5.25,** Talk: April Jokes and Humour from the Legal Point of View. **5.50,** Talk on Graphic Art. **6.15,** Time and News. **6.30,** Gramophone Records of Light Music. **6.45 to 9.0,** See **Frankfurt. 9.0,** Time, News, Weather and Programme Announcements. **9.20,** Sonata in F Sharp Minor, Op. 11, for Pianoforte (Schumann), played by Hans Breheme. **10.0,** Regula Krenzfeind—A Legend (Albrecht Schaeffer), with Music by Wilhelm Locks, relayed from the Universum-Theatre, Mannheim. **10.30** (approx.), Close Down.

SUNOSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—**5.15 p.m.,** Cello Solos: Elegy (Massenet); Berceuse de Jocelyn (Godard); O Star of Eve from Tannhäuser (Wagner); Le Cygne (Saint-Saëns). **5.30,** Programme for Children. **6.0,** Bal Musette. **6.15,** News, Racing Results and Market Prices. **6.25,** Local News. **6.30,** Opéra-Comique Songs. **6.45,** Military Music. **7.0,** Popular Songs. **7.15,** Argentine Music. **7.30,** Orchestral Concert: Selection from Die Fledermaus (Joh. Strauss); Prélude à l'après-midi d'un Faune (Debussy); A Hunt in the Black Forest (Voecker); Overture, Light Cavalry (Suppé); Trois petite pieces montées (Satie); Selection from The Italian Girl in Algiers (Rossini). **8.0,** Extracts from Lohengrin—Opera (Wagner). **8.40,** Viennese Music. **9.0,** Hawaiian Guitar Solos. **9.15,** North African News. **9.30,** Concert for Listeners in Morocco. **10.0,** Songs from Sound Films. **10.15,** Hawaiian Guitar Solos. **10.30 to 11.0,** Programme in English by the I.B.C. W. Brown-Constable announcing. Songs and Music: Old Vienna Moon; The Gay Highway; Stonecracker John; Black Eyes; Love's Dream after the Ball; The Drum Major; The Wheeltapper's Song; Selection from Congress Dances. **10.57,** I.B.C. Good night Melody. **11.0,** Weather and Announcements. **11.5,** Vocal Tangos. **11.15,** Military Marches. **11.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**4.10 p.m.** till Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW.—Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 589 kc/s, 500.8 metres.—4.10 to 5.0 p.m.,** Concert of Light Music. **5.35,** Giornale Radio, Agricultural, and Dopolavoro Notes. **6.5,** Giornale Radio. **6.30,** Time, Announcements, Tourist Report, and Gramophone Records of Popular Music. **7.0,** Giornale Radio, Weather, and Gramophone Records (contd.). **8.0,** Relay of an Opera. In the intervals, Talk, Literary Notes, and Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—**10.0 to 10.15 a.m.,** Religious Information in French. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

RADIO-WIEN, 581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.—3.55 p.m.,** Concert by Gustav Macho and his Band: Overture, St. Hubertus (Fucik); Didi Waltz (O. Straus); Cello Solo, Serenade (Cassado); Selection from Der lachende Ehemann (Eysler); Pianoforte Solo, Spinning Song (Mendelssohn); Violin Solo, Huilamzo (Hubay); Waltz, Fesche Geister (Eduard Strauss); Pianoforte Solo, Scherzo (Brüll); Potpourri, Wiener Melodien-Kongress (Macho). **5.0,** Talk on the Viennese Women's Arts Exhibition. **5.20,** Talk for Workers. **5.45,** Theatre Talk. **5.55,** Talk: The Viennese Zoological Garden. **6.20,** Time, Weather, and Programme Announcements. **6.30,** Military Band Concert, conducted by Josef Richter: March (Engelhardt); Minnterfanfare (K. J. Richter); Waltz from Das Fürstenkind (Lehar); Overture, Robert le Diable (Meyerbeer); March, Mit dem Edelweiss (Kutschera); Potpourri, Vom Rhein zur Donau (Rhode); March (Weinberger); Waltz, Nillluten (Joh. Strauss); March (Novotny). **7.45,** Tannhäuser—Opera (Wagner), on Gramophone Records. In the interval at **8.45,** News, Weather, and Announcements, and at **9.45,** Snow Report.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Fanfare from the Tower of St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Light Music on Gramophone Records. **11.30,** Weather Forecast. **11.35,** Twenty-Second Concert for Schools. The Warsaw Philharmonic Orchestra, conducted by B. Wolfstal, the Lutnia Warsawska Mixed Choir, and Soloists. **1.0 to 2.10 p.m.,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.25,** Popular Music on Gramophone Records. **2.35,** Review of Women's Periodicals. **2.50,** Popular Music (contd.) **3.25,** French Lesson. **3.40,** Talk: The Utopia of the United States. **4.0,** Quartet in A Minor, Op. 51, No. 2 (Brahms) on Gramophone Records. In the interval, Announcements. **4.40,** Topical Talk. **4.55,** Programme Announcements. **5.0,** Talk on History. **5.20,** News. **5.25,** Light Music. **6.0,** Miscellaneous Items. **6.20,** Agricultural Notes. **6.30,** Reading. **6.45,** Radio Journal. **7.0,** Concert by the Station Orchestra, conducted by S. Nawrot. Soloist: H. Sawicka (Soprano). Overture, A Waltz Dream (O. Straus); Intermezzo, Canto di passione (Pennati-Malvezzi); Waltz (Vollstedt). Songs: (a) The Swallow (Crescenzo), (b) Song from The Chocolate Soldier (O. Straus). (c) Ritorno amore (Buzzi-Peccia); Spanish Caprice—Alhambra (Semler); Czechovienne (Noskowski); Serenade from Les Millions d'Arlequin (Drigo); Overture, Donna Juanita (Suppé): Songs: (a) Souvenir (Drdla), (b) Waltz from La Reginetta delle rose (Leoncavallo), (c) Caprice viennois (Kreisler); Waltz from Casanova (Rozycki); Caravan (Friml); Slav Dances Nos. 1 and 10 (Dvorak); March (Marzek). In the interval, News and Radio Journal. **8.30,** Reading, relayed from **Wilno, 533 kc/s, 563 metres. 9.15,** Dance Music. In the interval, Aviation Weather Report and Radio Journal.

ZURICH.—See **Schweizerischer Landessender.**

FRIDAY

MARCH THE THIRTY-FIRST

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL LONDON and MIDLAND REGIONAL	"Chopin," a play by W. Rooke-Ley and C. Martin. "Nine-thirty Novelties," feature programme by G. M. Hayes and F. K. Clarke.
NORTH REGIONAL	Historic Cities of the North: Lancaster.

ABROAD

ATHLONE	8.20 p.m. The Follies Revue Company.
BARI	7.35 p.m. Vocal concert.
BERO-MUNSTER	6.40 p.m. Opera: "Don Carlos" (Verdi), from Berne.
BRUSSELS (No. 1)	7 p.m. The Symphony Orchestra, conducted by M. Kumps.
BRUSSELS (No. 2)	8 p.m. The Radio Orchestra, conducted by F. André.
BUCHAREST	7 p.m. Symphony concert by the Philharmonic Orchestra.
HAMBURG	8.10 p.m. The Philharmonie Orchestra, conducted by J. Eibenschütz.
HEILSBERG	7.45 p.m. Beethoven's Ninth Symphony, from Königsberg.
LANGENBERG	7 p.m. The Münster Teachers' Choral Society, with a Boys' Choir and organ solos.
PALERMO	7.45 p.m. Opera: "The Pearl Fishers" (Bizet).
ROME	7.45 p.m. Extract from "Le Roi de Lahore" (Massenet).
TURIN	8 p.m. Symphony concert conducted by A. Pedrollo.
WARSAW	7.15 p.m. Concert from the Philharmonie, conducted by Fitelberg. Solo pianoforte: Alfred Cortot.

ALGIERS

623.3 kc/s, 364 metres; 13 kW.—**7.0 p.m.,** Financial News. **7.10,** Shipping Notes. **7.15,** Weather Forecast and Agricultural Report. **7.30,** Agricultural Talk. **7.35,** Popular Music on Gramophone Records. **7.55,** News. **8.0,** Time Signal. **8.2,** Talk: Aviation in the Sahara. **8.15,** Veronique—Opera in Three Acts (Messager).

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Talk on Gardening. **7.45,** Talk for Farmers. **8.0,** Pianoforte Recital by D. Ffrench-Mullen. **8.20,** Programme by the Follies Revue Company. **9.20,** Violin Solos by M. Collin. **9.35,** The Station Orchestra. **9.50,** Contralto Solos by Mairin Fenning. **10.5,** The Station Orchestra (contd.). **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **7.0,** Dance Music relayed from the Ritz Hotel. **7.30,** Exchange Quotations and Dance Music (contd.). **8.0,** Light Music on Gramophone Records, followed by News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, Messages to Seamen, Exchange Quotations, and Market Prices. **9.10,** Concert by the Station Orchestra: Overture, His Life for the Czar (Glinka); Idyll (Bayer); Legend No. 10 (Dvorák); Marche héroique (Saint-Saëns). **9.30,** Concert by a Mandoline Orchestra. **10.15,** Light Orchestral Concert relayed from the Café Espanol. **11.0** (in an interval), News Bulletin. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Report, Tourist and Dopolavoro Notes. **7.20,** Giornale Radio. **7.30,** Time and Announcements. **7.35** (approx.), Concert. Soloists: d'Angelo (Baritone), De Santis Bruno (Soprano). Theatre Notes in the interval. **9.30,** Light Music on Gramophone Records. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**4.0 p.m.,** Talk. **5.45,** Time and Programme Announcements. **6.0,** Talk for Sokols. **6.30,** Talk. **7.0,** Folk Song Recital. **7.30,** Concert by the Royal Guards Band. **9.0,** News. **9.5,** Light Music from the Ratnicki Dom Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12.45 p.m.,** News. **1.0 p.m.,** Gramophone Concert of Brahms Music relayed from **Berlin (Witzleben).** **2.0,** Talk for Girls; Books. **2.30,** Weather and Exchange. **2.45,** Review of Periodicals. **3.0,** Educational Talk. **3.30,** See **Leipzig.** **4.10,** Topical Talk. **4.30,** Talk: Famous German Mystics. **5.0,** Recital of German Folk Songs by the Station Chamber Choir, conducted by Lindner: Der Lindenbaum (Schubert); Deutsches Weihelied (Methfessel); Untreue (F. Glück); Treue Liebe; Mein eigen soll sie sein; In stiller Nacht (Brahms); Grenadierlied; Ein Schifflein sah ich fahren. **5.30,** Talk for Workers: Social or Private Insurance? **5.55,** Weather for Farmers and Announcements. **6.0,** Medical Talk. **6.30,** A Poem. **6.35,** See **Hamburg.** **7.30,** Schlageter—Drama (Hanns Johst). **9.0,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** See **Frankfurt.** **11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.0 p.m.,** Topical Talk. **6.10,** Gramophone Concert: O schöner Mai (Joh. Strauss); Song from La Favorita (Donizetti); Song from The Pearl Fishers (Bizet); Two Songs from The Gipsy Baron (Joh. Strauss); Deine blauen Augen (Bohm); Duet from Wiener Blut (Joh. Strauss). **6.45,** Talk on Gramophone Records: What People are talking about in America. **7.0,** Announcement. **7.5,** The Stargard Verdict—Radio Play (Veit Rosskopf). **8.35,** Songs from Ludwig Tieck's Magelone, Op. 33 (Brahms), by Julius Patzak (Tenor). **9.15,** Weather, News, and Sports Notes. **9.30** (approx.), Orchestral Concert from the Moka-Efti. **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

(PTT), 986 kc/s, 304 metres; 13 kW.—**6.30 p.m.,** News Bulletin. **6.40,** Light Music on Gramophone Records. **6.55,** Lottery Results. **7.0,** Spanish Lesson. **7.15,** News Bulletin. **7.30,** Concert by a Symphony Orchestra. In the intervals, Variety Music on Gramophone Records.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**5.5 p.m.,** Pianoforte Concerto in D (Mozart) by Milos Hrabussay and the Station Orchestra. **5.45,** Slovak Spelling Lesson. **6.0** till Close Down, See **Prague.** **9.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc/s, 253 metres.—12.10 p.m.,** Gramophone Concert of Opera Music. **12.45,** Time, Weather, News and Exchange. **1.5,** Classical Music on Gramophone Records. **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Programme for Young People. **3.10,** Recital of Spring Songs by Alfred Stöckel (Tenor). Frühlingsglaube (Schubert); Frühlingsnacht (Schumann); Spring Song (Mendelssohn); Warte, wenn wieder das Veilchen blüht (Haas); Es blinkt der Tau (Rubinstein); Liebesfeier (Weingartner); Kommender Frühling (Riemann); Herr Lenz (R. Strauss). **3.35,** Orchestral Concert, conducted by Franz Marszalek. Overture, Figaro (Mozart); Selection from The Daughter of the Regiment (Donizetti-Schreiner); Fantasia, Ein Fest in Aranjuez (Demersseman); Waltz, Freudegrüsse (Jos. Strauss); Josef Gungl Potpourri (Fetras). **4.30,** Agricultural Prices. **4.35,** Talk: The Town of Thorn, Poland. **4.55,** Reading from Unpublished Works of Young Authors. **5.25,** Programme to be Announced. **5.55,** Gramophone Concert. Overture, The Black Domino (Auber); Intermezzo from A Midsummer Night's Dream (Mendelssohn); Till Eulenspiegel's Merry Pranks (R. Strauss). **6.30,** Weather for Farmers and Cattle Market Prices. **6.35,** Talk on Prague. **7.0,** First Symphony in C Minor, Op. 68 (Brahms), by the Silesian Philharmonie Orchestra. **8.0,** Announcements. **8.10,** Countess Maritza—Operetta (Kálmán). **9.0,** Time, Weather, News, Sports Notes and Programme Announcements. **9.25,** Stage Anecdotes. **9.40,** Variety Concert, relayed from **Berlin (Witzleben).** **11.0** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by Jan Janota; Soloist: Gustav Talman (Tenor): Overture, La Princesse jaune (Saint-Saëns); Seven Songs for Tenor and Orchestra, Op. 8 (Walter Vecera); Suite, Old China (Walter Niemann). **3.55,** Theatre Notes. **4.5,** See **Prague.** **5.5,** Talk: Creative Art. **5.15,** Talk for Workers. **5.25,** German Transmission: News, Sports Notes, and Literary Talk. **6.0,** See **Prague.** **6.25,** Recital of French Arias and Songs by Vlasta Kubiková. **6.45,** Review of Gramophone Records. **7.15,** In the Mountains—Suite for Zither (Frant. Hycka), played by the Composer. **7.30,** Reading of Czech Poems. **8.0,** See **Prague.** **9.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**11.0 a.m.,** Selection from Tannhäuser (Wagner) on Gramophone Records. **12 Noon,** Le Journal Parlé. **12.10 p.m.,** Concert by the Small Orchestra, conducted by P. Leemans: L'avocate (Ackermans); Chanson d'Arlette (Detaye); Soirée à Lilliput (Berry); Fantasia for Pianoforte (Benoit); Two Pieces (d'Agrèves); Waltz (Guillaume); Loin du pays (Faulx). **1.0,** Educational Programme. **4.0,** Concert by the Radio Orchestra conducted by André: Selection from Viktoria and her Hussar (Abraham); A Musical Joke (Aston); Gavotte for 'Cello (Popper); Britelodia (Humphries); Violin Solo, Salut d'amour (Elgar); Saschinka (Hirschmann). **5.0,** Talk on Motor Cars. **5.15,** Gramophone Concert: Rhapsody for Clarinet and Orchestra (Debussy); Suite Op. 2 (Feinberg); Après un rêve (Fauré); Suite bergamasque (Debussy); Mazeppa (Liszt); Scherzo (Lalo); Valse de concert Op. 47 (Glazunov). **6.15,** Talk: The Accountant. **6.30,** Literary Review. **7.0,** Concert by the Symphony Orchestra conducted by M. Kumps; Soloist: Mme. Fauville (Songs): Melody from Sylvia (Delibes); Extract from a Suite (De Lorient); Songs: (a) Der Lindenbaum (Schubert), (b) Sonntag (Brahms), (c) Cantique à l'épouse (Chausson), (d) Melody (Jongen); Rapsodie Canadéenne (Gilson). **7.45,** Talk on Insurance. **8.0,** Symphony Concert (contd.); Soloist: Mlle. Olga Ugane (Songs): Symphony in D (Mozart); Songs: (a) Curieuse (Perrier), (b) Si pelele (Pievel), (c) Papa n'a pas voulu (Nohain); Variations on a Haydn Theme (Brahms); Hungarian Dance Suite (Brahms). **9.0,** Le Journal Parlé. **9.10,** Light Music on Gramophone Records. **10.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**11.0 a.m.,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Die schöne Galathée (Suppé); Petite Suite (Chaminade); Legend No. 7 (Dvorák); Selection from La Mascotte (Audran); Concert Mazurka for Flute (Doppler); Waltz, Ton amour (Langlois); Foxtrot, Quit cryin' the Blues (Lewis); Selection from Mr. Cinders (Ellis-Myers). **12 Noon,** Le Journal Parlé. **12.10 p.m.,** Prologue and Act One of Mephistopheles—Opera (Boito) by the Soloists, Choir and Orchestra of the Scala, Milan, on Gramophone Records. **1.0,** Educational Programme. **4.0,** Concert by the Symphony Orchestra, conducted by J. Kumps: Symphony (Mozart); Danses villageoises (Grétry); Flemish Dances (Blockx). **5.0,** Hugo Wolf Song Recital by Théo Mercier: Der Genesene an die Hoffnung; Der Tambour; An eine Aeolsharfe; Verborgenheit; Gesang Weylas. **5.15,** Talk: The Birth of the Transvaal. **5.30,** Concert by the Small Station Orchestra, conducted by P. Leemans: Cortège catalan (de Sévérac); Nocturne (Debussy); Suite, Kerneo (Vuillemin); Le colibri (Chausson); danse dorienne (Guittard); Three Arias (Turina). **6.15,** Talk: The Influence of Drink on Young People in Belgium and Abroad. **6.30,** Wireless Review. **7.0,** Ball and Dance Conversations—Radio Play (Hermynia zur Mühlen), translated from the German by M. Senotte. **8.0,** Concert by the Radio Orchestra, conducted by Franz André. Soloist: Mme. Dora Galgey (Songs). Three Flemish Songs (Schoemacker); Selection from Milenka (Blockx); Songs: (a) For you alone (Geehl), (b) I love the Moon (Sanderson); Berceuse for Flute and Orchestra (Goyens); Marche grotesque (Goyens); Songs: (a) Jeunesse et amour (Van der Stucken), (b) Waarom en weet ik niet (Keurvels); Selection from Hansel and Gretel (Humperdinck); Hungarian Dances (Brahms). **9.0,** Le Journal Parlé. **9.10,** Dance Music. **10.0** (approx.), Close Down.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**4.0 p.m.,** Concert by the Station Orchestra: Coronation March (Meyerbeer); Waltz from Mein junger Herr (O. Straus); Italian Suite (Kostal); Spanish Serenade (de Micheli); Foxtrot on Themes from Die Fledermaus (Strauss-Kochmann). **5.0,** News and Time Signal. **5.15,** Concert (contd.): Romanian Potpourri (Dinicu); Humoresque and Mazurka (Dvorák); Rusticanella (Cortopassi). **6.0,** Talk: Romania's Popular Art. **6.20,** Talks on Philosophy and History. **7.0,** Symphony Concert by the Philharmonie Orchestra. **8.0,** Talk. **8.15,** Concert (contd.). **9.0,** News.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW. Programme also relayed on **840 metres** from **6.25 to 11.0 p.m.—4.30 p.m.,** Concert of Light Music. **6.0,** Shorthand Lesson. **6.30,** Relay from the Royal Hungarian Opera House. After the Programme, Cigány Music from the Hotel Gellert. **10.15,** Dance Music from the Hotel Gellert.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by **Kalundborg, 260 kc/s, 1,153 metres.**—Transmits at intervals from **11.0 a.m.,** Time and Chimes from the Town Hall. **11.5,** String Ensemble Concert relayed from the Bellevue Strandhotel. **12.15 p.m.,** Geographical Talk. **12.45 to 1.40,** Interval. **1.40,** Concert by Carl Rydahls' Instrumental Ensemble. **3.40,** The Last of the Mohicans—Play for Children with Songs (after the Book by James Fenimore Cooper). **4.40,** Exchange and Fish Market Prices. **4.50,** Address by Herman Koch. **5.20,** German Lesson. **5.50,** Weather Forecast. **6.0,** News. **6.15,** Time Signal. **6.30,** Talk: Politics for the month of March. **7.0,** Chimes from the Town Hall. **7.5,** Programme by Per Knutzon. **7.10,** Recital of German Duets by Anna Hagen and Edith Schmidt: Songs (Schumann): (a) Schön Blümelein, (b) Frühlingslied, (c) An die Nachtigall; Songs: (Mendelssohn): (a) Ich wollt' meine Lieb ergösse sich, (b) Gruss, (c) Herbstlied. **7.30,** Rose Bernd—Comedy in Five Acts (Gerhart Hauptmann). **9.0,** News Bulletin. **9.15,** Danish Music by the Station Orchestra conducted by Emil Reesen and the Breuning-Bache Quartet: Sinfonietta (Tarp); Prelude and Intermezzo for Oboe and Orchestra (Weis); String Quartet in G, Op. 16 (Brodersen). **10.15** (approx.), Close Down

CORK.—See **Athlone.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—**6.0 p.m.,** Miscellaneous Items and Announcements. **6.15,** Talk. **6.30** till Close Down, See **Warsaw.** **10.0** (approx.), Close Down.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11.0 a.m.,** Light Music on Gramophone Records. **11.30,** News Bulletin. **11.45,** Concert of Light Music. **5.30 to 7.0,** Programme in English by the I.B.C., C. Danvers-Walker, B. McNabb, and F. Lamping announcing. (These times are subject to alteration.) **5.30,** Orchestral Concert for Southampton Listeners: Potpourri of Intermezzos (arr. Ancliffe); Vienna, Vienna (Foss); Valencia (Padilla); The Woman in the Shoe; In the Night (Tate); Chinatown, my Chinatown (Schwartz); Memories of Paris (Christine); Potpourri of Waltzes (arr. Ancliffe). **6.0,** Vocal Concert for Bournemouth Listeners: Brothers of the Empire (Helmore); My Sword and I (Byng); The Drum Major (Newton); Orchestra: Waltz, Gold and Silver (Lehár); The Volunteer Organist (Lamb); Route Marching (McCall); I am a Friar of Orders Grey (Reeve); Orchestra: Waltz from Bitter Sweet (Coward); Gramophone Celebrity Concert for Weymouth Listeners: Down among the Sheltering Palms,

by the Boswell Sisters; I think I'll get wed in the Summer, by Sir Harry Lauder; A little bit of Chinese Music, by Flanagan and Allen; Pardon me Pretty Baby, by Jack Smith; Love me To-night, by Greta Keller; Dream Sweetheart, by Layton and Johnstone; Obadiah's Mother, by Gracie Fields; Ol' Man River, by Paul Robeson. **7.0,** Local News and Popular Music on Gramophone Records. **7.30,** Radio Gazette. **8.0,** Agricultural Report. **8.15,** News and Popular Music on Gramophone Records. **8.30,** Concert, relayed from **Le Havre. 10.0** till Close Down, Programme in English by the I.B.C. (These times are subject to alteration.) **10.0,** Dance Music: Put that Sun back in the Sky; Georgia on my Mind; Lullaby of the Leaves; Good-night, Vienna; Goofus; You've got what gets me; If I didn't have you; Love, you Funny Thing; The Echo of a Song; Don't tell a Soul; Gone for Ever; Living in Clover; One Little Quarrel; I got Rhythm; Oh Monah. **11.0,** Concert by a Symphony Orchestra: Rakoczy March (Berlioz); Ballet Music from Coppelia (Delibes); Morning (Grieg); Autumn (Chaminade); Selection from Il Trovatore (Verdi); Träume (Wagner). **11.30,** Song Recital: Killarney; Oft in the Stilly Night; Once again; Pianoforte Solo: Selection from Viktoria and her Hussar; The Rosary; Tom Bowling; Drink to me only with thine Eyes. **12 Midnight,** Variety Concert: I've got one Arm round Mary; Jack joins the Navy; Sweet Carolina; Hot Scotch; Minnie the Moocher; Barrel Organ Medley; Mrs. Carter. **12.30 a.m. (Saturday),** Popular Songs: I feel you near me; Ireland, Mother Ireland; Hollywood Nights; Orchestra: Good Old Songs; I'd rather be a Beggar with you; Reach out for a Rainbow; Hush-a-bye Baby. **1.0,** Pianoforte Recital: Popular Melodies on a Piano (Ray); I found you (Noble); The Big Pond Medley (Fain); Song: A Mother's Kiss; Let Love take Care of You (van Phillips); Song: A Little Green Heaven; The Squirrel Dance (Elliot Smith). **1.30,** Vocal Trios: You'll never realise; Tiptoe through the Tulips; Without a Song; Banjo Solo: The Buffoon; I'll always be true; Time on my Hands; A Pair of Blue Eyes; Banjo Solo: Fingertricks. **2.0,** Dance Music: The Sun has got his Hat on; Strangers; Singing in the Moonlight; Paradise; The Gag Song; The Old Kitchen Kettle; I've gone and lost my little Yo-Yo; Au revenido; Pagan Moon; When the Band goes marching by; Leave the Rest to Old Man Moon; It's that extra little something; Speedway Sam; Same Old Moon. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW. Relayed by **Cassel, 1,220 kc/s, 245.9 metres.**—**4.0 p.m.,** See **Munich. 5.15,** Economic Notes. **5.25,** See **Stuttgart. 6.15,** Time, Programme Announcements, Weather and Economic Notes. **6.20 to 9.0,** See **Stuttgart. 9.0,** Time and News. **9.30,** Concert by the Radio Orchestra: Conductor: Reinhold Merten: Soloists, Michael Fuhrmann (Oboe), Wilhelm Schütze (Clarinet), and Gustav Jung (Bassoon): Ballet Suite, No. 1 (Gluck-Mottl); Concerto for Oboe with Orchestral and Harpsichord Accompaniment (Telemann); Concertino for Clarinet, Op. 26 (Weber); First Movement from the Concerto for Bassoon and Orchestra (Mozart); Overtures (Joh. Strauss): (a) Blindekuh, (b) Prince Methuselah, (c) Cagliostro. **11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres,** and **Kiel, 1,292 kc/s, 232.2 metres.**—**6.0 p.m.,** Talk on the Week-end. **6.25,** Weather Report. **6.30** (from **Hanover**), German Song and Dance Melodies by the Silcher Double Quartet and the Station Orchestra. In the interval at **6.45,** Talk by Kurt G. Sell: What People are talking about in America, relayed from **America. 8.0,** News. **8.10,** Symphony No. 3 in D Minor (Bruckner), by the Hamburg Philharmonic Orchestra, conducted by José Eibenschütz. **9.10,** Time and News. **9.20,** Topical Talk. **9.30,** Concert relayed from the Ostermann Restaurant. **10.20,** Ice Report. **10.25,** Concert relayed from the Atlantic, Bremen.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.**—**12.5 p.m.,** Variety Music on Gramophone Records. In an interval at **12.20,** News. **1.30,** Programme arranged by the Post Office with Gramophone Records. **2.0,** Agricultural Prices and Exchange. **2.30,** Programme for Children. **3.0,** Talk for Women. **3.30,** See **Leipzig. 4.30,** Book Review. **4.50,** Talk: Arranging a Private Shoot. **5.15,** Agricultural Prices. **5.20,** Ice Report. **5.25,** Talk: The History of the Baltic in the Literature of the Baltic Countries. **5.55,** The World on Gramophone Records—Spain in Song and Dance—Talk with Gramophone Illustrations. **6.45,** Talk by Kurt G. Sell: What People are talking about in America, relayed from **America. 7.0,** Weather and News. **7.10,** Talk: In memoriam—Otto von Bismarck. **7.45,** Symphony No. 9 in D Minor, Op. 125 (Beethoven), relayed from the Town Hall, **Königsberg;** The Augmented Opera House Orchestra, the Musical Academy Choir, the Choir of the Verein der Liederfreunde, and Soloists. **9.0,** Weather, News, and Sports Notes.

HILVERSUM

Announced **HUIZEN, 1,013 kc/s, 296.1 metres;** 20 kW. (7 kW. up to **4.40 p.m.**). Programme of the Christian Radio Society (N.C.R.V.). — **11.40 a.m.,** Police Notes. **11.55,** Concert by the Vad. Horst Trio: Soloist: P. Hurk (Flute): Overture, The Black Domino (Auber); Die Romantiker (Lanner); Gavotte (Hauser); Gramophone Records; Selection from Iris (Mascagni); Serenade (Micheli); Selection from Martha (Flotow); Melody (Fetras); Gramophone Records; Selection from Thaïs (Massenet); Petite suite (Chaminade); Overture, Giralda (Adam). **1.40 to 2.10 p.m.,** Interval. **2.10,** Religious Reading. **2.40,** Talk for Women. **3.10,** Concert by the Hendriks Trio: Trio in F (Saint-Saëns); Sonata, Op. 69, No. 3, for 'Cello (Beethoven); Habanera, Op. 1 (Fernandez-Arbos). **4.40,** Talk for Stamp Collectors. **5.10,** Talk for Young Photographers. **5.40,** Agricultural Talk. **6.10,** Talk. **6.40,** Literary Talk. **7.10,** Police Report. **7.25,** Religious Announcements. **7.40,** Concert by the Small N.C.R.V. Orchestra and a Women's Choir. **8.40,** Talk. **9.10,** News. **9.20,** Orchestral Concert: Entry of the Gladiators (Fucik); Clarinet and Orchestra: Eleventh Solo (Klasé); Chlaucnattacke (Bohm); Saxophone and Organ, Goodbye (Tosti); Pizzicato Polka (Stranss); Violin Solo: Du alter Stefansturm (arr. Kreisler); Organ Solo: Donausagen (Fucik); Carillon Solo: Marquisette (Lindsay-Theimer); Perpetuum mobil (Stranss); Trumpet and Orchestra: Air Varié (Plateel); Overture, Flotte Bursche (Suppé); Violin and Orchestra: The Canary (Poliakin); Saxophone and Organ: Melody (Rubinstein); Organ Solo: Selection from The Bird Fancier (Zeller); Xylophone Solo: Kunstreiter (Oertel); Trombone and Orchestra: Gesangsszene (Popp); March, The Gladiators Farewell (Blankenburg). **10.55,** Popular Music on Gramophone Records. **11.10** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

Announced **HILVERSUM, 160 kc/s, 1,875 metres;** 8.5 kW.—**11.20 a.m.,** Programme of the Workers' Radio Society (V.A.R.A.): Recitations. **11.40 to 3.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.40,** Time Signal. **11.41,** Orchestral Concert, conducted by Nico Treep: March (Schoutemeyer); Fantasia, A Talk with Delibes (Urbach); Two Dances (Samuhtini); Selection from Le Petit Duc (Lecocq); Gramophone Records; Selection from The Maid of the Black Forest (Jessel); Slav Dance, No. 6 (Dvorák); Waltz from Faust (Gounod); Mazurka, La Mousmé (Ganne); Gramophone Records; Fantasia, Fortissimo (Kálmán-Feigel); Entry of the Spring Flowers (Kockert); March, Sempre avanti (Fucik). **1.40 p.m.,** Popular Music on Gramophone Records. **2.10,** Concert (contd.): Impression (Rubinstein); Polish Dance (Rubinstein); Selection from William Tell (Rossini); Festival Overture (Lortzing). **2.40,** Popular Music on Gramophone Records. **3.40 to 7.40,** V.A.R.A. Programme. **3.40,** Orchestral Concert: The Marseillaise (de l'Isle); National Dances (Mannfred); Der Rose Hochzeitszug (Jessel); La lettre de Manon (Gillet); The Skaters' Waltz (Waldteufel); Schön Rosmarin (Kreisler); Selection from Polenblut (Nedbal); Marche socialiste (Gramm). **4.30,** Programme for Children. **5.10,** Organ Recital by J. Jong. **5.40,** Der Freischütz—Opera (Weber) (Concert Version), on Gramophone Records. **6.10,** Orchestral Concert: Overture, The Grand Duchess of Gerolstein (Offenbach); Potpourri of French and Italian Opera Music (Barrière); The Doll's House (Englemann); Sphärenklänge (Stranss). **6.40,** Talk. **7.0,** Massa Revue (Kolvers). **7.40 to 10.40,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). **7.40,** Talk. **8.10,** Pianoforte and 'Cello Recital by Mlle. Bosmans and M. Stad: Sonata in C (Aridi); Andante (Funèbre, Op. 65, No. 2 (Sinding); Mazurka, Op. 11, No. 3 (Popper); Sonata in C, Op. 13 (Schäfer). In the interval at **8.40,** Talk. **9.40,** News. **9.55,** Talk. **10.25,** Popular Music on Gramophone Records. **10.40,** Organ Recital by M. C. Steyn. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

MARCH 31st FRIDAY *continued*

JUAN-LES-PINS

NICE, 1,202 kc/s, 249.6 metres; 0.8 kW.—**9.30 to 10.30 p.m.,** Programme in English by the I.B.C.: H. K. Hitchcock announcing.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**6.15 p.m.,** Announcements and Gramophone Records. **6.25,** Sports Notes. **6.30,** See **Warsaw. 10.0,** The Letter Box in French.

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—**6.20 p.m.,** Variety Concert. **7.10,** Talk: Tuberculosis. **7.30,** Variety Programme. **7.50,** Talk: The Programme of the Board of Agriculture for 1933. **8.10,** Concert. **8.40,** Sports Notes. **8.50,** Evening Concert. **9.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW; and **HELSINKI, 815, kc/s, 368.1 metres.**—**5.55 p.m.,** Talk. **6.20** (from **Helsinki**), Pianoforte Recital by Karttu Bernhard. **6.45,** Talk. **7.10** (from **Helsinki**), Military Band Concert, conducted by Lauri Nare: Sisumarssi (Hannikainen); Pirun polska (Kuula); Danse macabre (Saint-Saëns); Overture, The Mastersingers (Wagner). **7.45,** News in Finnish. **8.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert conducted by Eysoldt: Jungmann-Marsch (Weinhold); Concert Overture, In Autumn (Grieg); Traum-Walzer (Millöcker); Selection from Rienzi (Wagner); Suite, An die Frende (Scheinpflug); Symphonic Prelude (Previsio!); Malerisches Ständchen (Gracner); Ein Abend in Wien (Schubert); Selection from Die Kaiserin (Fall). In the interval at **1.0 p.m.,** News. **1.30,** Sponsored Programme with Gramophone Records. **2.30,** Economic Notes and Time. **2.50,** Handwork for Children. **3.20,** Readings for Young People. **4.0,** Symphony Concert, conducted by Buschkötter: The Maria Theresa Symphony (Haydn); Linz Symphony (Mozart): The Unfinished Symphony (Schubert). **5.15,** Talk: Nameless Inventors. **5.45,** Weather, Time, Economic Notes and Sports Results. **6.0,** Disenssion: A Hundred Years of Prison Welfare Work in Wuppertal. **6.40,** News. **6.45,** Talk by Kurt G. Sell: What People are talking about in America, relayed from **America. 7.0,** Concert by the Münster Teachers' Choral Society, a Boys' Choir and Theodor Brockhans (Organ): Organ Solo: Prelude and Fugue in C (Böhm); Canon, Mit Instrument und Saitenspiel (Sartorius); Madrigal, Frisch auf, singet alt, ihr musici (Demantius); Ein Musikus wollt' fröhlich sein (Grätz); Madrigal (Donati); Der Gutzgauch auf dem Baume sass (Semlin); Madrigal (di Lasso); Madrigal (Morley); May Song from Zeitkranz (Knab); Herzlich tut mich erfreuen (Lechner); Organ Solo: Prelude and Fugue in G (Bach); Folk Song, Der Tag vertreibt die finstre Nacht (arr. Gofferje); Der Mensch hat nichts so eigen (Albert); Lob Gott getrost mit Singen (Gumpelzhalmer); Der Mond ist aufgegangen (Schulz); Gott führ' auch unser Vaterland (ron Chorgemeinschaft Ludwig Weber). **8.15,** Station D in the Polar Seas—Radio Play (Hanns Braun). **9.0** (approx.), News and Sports Notes. **9.20,** Serenade, conducted by Wolf. **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by **Dresden, 941 kc/s, 319 metres.**—**12.15 p.m.,** Dialect Programme of Folk Music on Gramophone Records, followed by Exchange Quotations. **1.30,** Art Review. **2.0,** Reading for Young People. **2.15,** Gardening Talk. **2.35,** Exchange and Market Prices. **3.0,** Talk: The Heavens in April. **3.30,** Concert by the Station Orchestra, conducted by Hilmar Weber: Waltzes, Op. 25, Nos. 1 and 2 (Fuchs); Serenade Op. 95 (Zöllner); Ballet Music from Undine (Lortzing); An Evening in Toledo (Schmeling). **4.30,** Review of Books. **4.50,** Weather, Time, and Exchange Quotations. **5.0,** Talk: Local Government in the Past and Present. **5.25,** English Lesson. **5.50,** Programme to be announced. **6.0,** Talk: Religious Instruction. **6.30,** Franz von Blon Concert by the Station Orchestra, conducted by the Composer. Heroic Overture; Dramatic Overture; Dance Suite in Eight Movements. **7.30,** Talk: What People are Talking About in America, relayed from **America. 7.45,** A Humorous Radio Sequence. **8.45,** Song Recital by J. M. Hauschild (Baritone). **9.15,** News Bulletin. **9.30** (approx.), Gramophone Concert: Wem Gott will rechte Gunst erweisen; In lauschiger Nacht (Ziehrer); Faschingskinder (Ziehrer); Deutschlands Ruhm (Schroeder); Arietta with Variations (Buxtehude); Des Rosenband (Schumann); Der Musensohn (Schumann); Marek (Berndt); Münchner Sang und Klang (Reeg). **10.30** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.30 p.m.,** Health Talk. **7.0 to 9.0,** See **Warsaw. 9.0,** Time and News. **9.5** (approx.), Popular Music on Gramophone Records.

LWOW

788 kc/s, 381 metres; 16 kW.—**6.0 p.m.,** Talk on History. **6.15,** Miscellaneous Items. **6.30** till Close Down, See **Warsaw. 10.0** (approx.), Close Down.

LYONS

LA DOUA, PTT, 644 kc/s, 465.8 metres; 1.5 kW. **6.30 p.m.,** Radio Gazette for Lyons and the South East. **7.30,** Concert of Operetta Music. **8.0,** Gala Programme, relayed from the Capital Theatre, Toulouse (See **Paris, Eiffel Tower**). News after the Programme.

MADRID

ARANJUEZ, EAQ, 9,860 kc/s, 30.43 metres; 20 kW.—**10.30 p.m.,** Concert of Light Music. **10.45,** Radio Chronicle. **11.0,** Concert of Light Music (contd.). **11.35,** Tourist Talk: Segovia. **11.40,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO (EAJ7), 707 kc/s, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, Programme of Musical Novelties and Variety Items by Ramon Gomez de la Serna. **8.15,** News Bulletin and Political Review. **8.30 to 9.30,** Interval. **9.30,** Chimes, Time Signal and Political Review. **9.45** (approx.), Humorous Talk, followed by Concert by the Station Symphony Orchestra, conducted by Felipe Briones: Overture, Figaro (Mozart); Intermezzo from Goyescas (Granados); Danse macabre (Saint-Saëns); Scheherazade (Rimsky-Korsakov); Andante from a Symphony (J. Bermúdez Silva); Symphonic Poem Torbellino (J. Bermúdez Silva); Prelude to La Revoltosa (Chapi). **1.45,** News Bulletin and Programme Announcements for Listeners Abroad. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW. **6.25 p.m.,** Pianoforte Recital of Spanish Music by A. Rotter. **6.45,** A Comedy (Havalka). **7.40,** Chromatic Accordion Solos by R. Bláha. **8.0,** See **Prague. 9.15** (approx.), Close Down.

MOSCOW

230 kc/s, 1,304 metres; 100 kW.—**4.30 p.m.,** Dramatic Programme. **5.30,** Concert, relayed from the Conservatoire. **8.0,** Review of the Week and Answers to Correspondents in English.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**4.0 p.m.,** Orchestral Concert, conducted by Erich Kloss: Overture, La finta semplice (Mozart); Andante and Minuet from the Second Symphony (Haydn); Selection from Czar and Carpenter (Lortzing); Waldstadtchen (Heinecke); Fantasia, Klein Idas Blumen (v. Klenau); Spanish Serenade (Welsch); Intermezzo from I quattro Rusteghi (Wolf-Ferrari); Military March (Ziehrer). **5.15,** Talk. **5.35,** Talk: The Struggle for Tsing-tau. **5.55,** Time, Weather and Agricultural Notes. **6.5,** Talk (to be announced). **6.25,** Choral and Orchestral Concert, conducted by Hans Winter. Soloist: Marins Andersen (Tenor). Comedy Overture (Walterhausen); Cantata for Tenor, Choir and Orchestra, Frauenlenz (v. Bartels); March and Scherzo from The Love for Three Oranges (Prokofiev); Symphonic Poem, La Mer (Debussy). **7.30,** Le Malade imaginaire—Comedy in Three Acts (Molière). German Translation by Ludwig Fulda. **8.55,** Choral Concert. **9.20,** Time, Weather, News and Sports Notes. **9.50,** Talk: What People are talking about in America, relayed from **America** (reproduction on Gramophone Records).

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**4.15 p.m.,** Request Gramophone Concert. **5.0,** French Lesson. **5.30,** Pianoforte Recital by Jan Wölner Hansen. **6.0,** Announcements, Weather and News. **6.30,** English Lesson. **7.0,** Time Signal. **7.1,** Concert by the Philharmonic Orchestra, conducted by Odd Grüner Hoge:

Overture, The Bartered Bride (Smetana); Symphony in G Minor (Mozart); Lyric Suite (Gustavson); Four Symphonic Dances (Grieg). **8.30,** Agricultural Report. **8.40,** Weather and News. **9.0,** Topical Talk. **9.15,** Recitations.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**7.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. **7.20,** Light Music on Gramophone Records. **7.30** (in an interval), Time Signal and Announcements. **7.45,** The Pearl Fishers—Opera in Three Acts (Bizet). In the intervals, Talk and Announcements. **9.55,** News Bulletin.

PARIS

EIFFEL TOWER, FLE, 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary asd 6-dot Signals). **5.45 p.m.,** Talk on the Theatre. **6.0,** Le Journal Parlé. **7.20,** Weather Report. **7.30,** Gramophone Dance Music. **8.0,** Gala Programme, relayed from the Capitol Theatre, Toulouse; Part I: Mozart Opera Music; Soloists: M. Rambaud, M. Sizes, and Marthe Ingrand (Songs); Overture, Figaro; Aria from Don Giovanni; Aria from The Magic Flute; Aria from Figaro; Interlude; Talk by the Mayor of Toulouse: The Town of Toulouse. Part II: Matinées d'amour (Mazellier), conducted by the Composer.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**5.45 p.m.,** Le Journal Parlé. **6.0,** Talk. **6.10,** Popular Music on Gramophone Records. **7.0,** Talk on Music. **7.30,** Vocal and Instrumental Concert: Soloists: Jeanne Isnard (Violin), Emma Boynet (Pianoforte), and Marguerite Soyer (Songs). **9.30,** News Bulletin.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**5.45 a.m.,** Physical Culture. **6.30,** Weather and Physical Culture (contd.). **6.45,** Light Music on Gramophone Records. **7.0,** Press Review and Weather. **11.0,** Jewish Talk. **11.30,** Concert by the Krettly Orchestra: The Surprise Symphony (Haydn); Adagio from the Pathetic Sonata (Beethoven); Overture, Athalie (Mendelssohn); Theme and Variations from the Front Quintet (Schubert); Waltzes (Schubert-Bigot); Two Preludes (Chopin-Bousquet); Divertissement (Lalo); Fragments poétiques (Godard); Carnaval (Guiraud). In the intervals at **12 Noon,** Exchange, News, and Weather, and at **12.30 p.m.,** Exchange. **1.0,** Exchange and Announcements. **2.45,** Exchange and Market Prices. **3.30,** Elementary English Lesson. **5.10,** Agricultural Talk. **5.30,** Review of New Books. **5.50,** Talk on Social Insurance. **6.0,** Talk: Great Days of the French Revolution—the Fifth and Sixth of October. **6.20,** Music by the Krettly Orchestra: Overture, Les Saltimbanques (Ganne); Wait (d'Hardelot); Sérénade discrète (Bosc); Last Love (Gung'l); La Lettre à Manon (Gillet); Angélus sur la mer (Goublier). **6.45,** Commercial Prices and News. **7.0,** Literary Readings. **7.30,** News and Weather Report. **7.40,** Gastronomic Review. **7.45,** Brignol et sa fille—Comedy (Capus). In the interval at **8.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KOKA), 360 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres** (See Short-Wave List).—**9.0 p.m.,** Talk by Dr. Emlyn Jones. **9.10,** Business News. **9.15,** S.A.I. Musicale (Carnegie Tech Chapter). **9.30,** Weather Report. **9.32,** Market Reports. **9.45,** Johnny Muskrat. **9.50,** David Lawrence Dispatch. **9.58,** Programme Announcements. **10.0,** Muskingum College Music Clubs. **10.15,** Dick Daring. **10.30,** The Singing Lady, from **New York.** **10.45,** Little Orphan Annie. **11.0,** Our Daily Food, by George Rector and Judge Gordon, from **New York.** **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Recler. **11.27,** Strange Facts. **11.29,** Temperature Report Philadelphia Company. **11.30,** KDKA Orchestra. **11.45 to 3.30 a.m. (Saturday) New York** Relay. **11.45,** To-day's News by Lowell Thomas. **12 Midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m.,** Adventures of Aunt Lulu. **12.30,** Five Star Theatre by Charlie Chan. **1.0,** Nestle's Programme. **1.30,** Time Signal and Adventures in Health. **1.45,** Howard Thurston, the Magician. **2.0,** The First Nighter. **2.30,** Armour Programme. **3.0,** Dorothy Fields and Jimmy McHugh. **3.15,** Vic and Sade. **3.30,** Bridge School of the Air by E. Hall Downes. **3.45,** Prof. Jack McLallen, Sara and Sassafras, from **New York.** **4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.13,** KDKA Artist Bulletin. **4.15,** Press Last Minute News Flashes. **4.20,** Cora Williams Hines (Contralto). **4.30,** Smith Ballew and his Orchestra. **4.58,** KDKA Artist Bulletin. **5.0,** Cotton Club Orchestra, from **New York.** **5.30,** Time Signal and Goodnight.

PORSGRUND.—See **Oslo.**

MARCH 31st FRIDAY *continued*

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**3.10 p.m.,** See **Brno.** **3.55,** Talk. **4.5,** Concert by the Ondricek Quartet: String Quartet in A, Op. 33 (Boccherini); String Quartet in B Flat, Op. 11 (Suk). **5.5,** Market Prices. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission: Medical Talk. **6.0,** Chimes. **6.1,** News Bulletin. **6.10,** Talk: Education and the Crisis. **6.25,** Bach Violin Recital by K. J. Zambek Chaconne; Adagio from the First Violin Sonata. **6.45,** Programme of Slovak Literature and Music, with Introductory Talk. **8.0,** Time Signal. **8.1,** Concert by the Station Orchestra, conducted by Jeremias; Soloist, Marie Pixova: Overture, Prometheus, Op. 43 (Beethoven); Aria, Ombra felice (Mozart); Gavotte in Old Style (Jirak); Songs (Novak); (a) The Child Ballad, (b) The Mountain Ballad; Suite for Orchestra (Haba). **9.0,** Time Signal. **9.1,** News Bulletin. **9.15** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **LAUSANNE, 442 kc/s, 680 metres;** and **GENEVA, 395 kc/s, 760 metres.—5.0 p.m.** (from **Geneva**). Interview with Young People. **5.15** (from **Geneva**), Reading. **5.30** from **Geneva**), Talk: The International Labour Bureau. **6.0** (from **Lausanne**), Weather Forecast, News Bulletin and Announcements. **6.30** (from **Lausanne**), Lesson for Apprentices in Accountancy. **7.0** (from **Lausanne**), Chamber Music, Mlle. Madeleine Margot (Pianoforte), M. Fritz Kok (Violin) and Mlle. Denise de Meuron (Cello). **8.15,** Cabaret Concert. **9.0,** News Bulletin and Weather Forecast. **9.10** (from **Geneva**), Talk: The Work of the League of Nations. **9.30** (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**6.15 p.m.,** Symphony Concert by the Radio Orchestra and the Opera House Orchestra, relayed from the National Opera House: Overture, Euryanthe (Weber); Symphonic Poem, Don Juan, Op. 20 (Rich. Strauss); Second Symphony in D (Brahms). News in the interval. **8.0,** Weather and News, followed by Light Music. **9.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,810 kc/s, 25.4 metres.—12 Noon,** Time and Announcements. **12.2 to 1.15 p.m.,** Concert of Light Music from **Turin.** In the interval from **12.30 to 12.45,** Giornale Radio and Exchange. **3.0,** Pianoforte Recital by Carlo Zecchi, relayed from the Royal Academy of St. Cecilia. **6.0 (Naples),** Shipping and Sports Notes. **6.10,** Agricultural and Dopolavoro Notes. **6.20,** Giornale Radio and Light Music on Gramophone Records. **7.0,** Time and Announcements. **7.5,** Report of the International Institute of Agriculture (in Italian, French, English, German and Spanish). **7.30,** Sports Notes and Tourist Report. **7.45,** Variety Concert: Extract from Le Roi de Lahore (Massenet). **8.30,** The Wind of the Desert—Comedy in One Act (Pietro Orestano). **9.0,** Concert (contd.): Extract from Suor Angelica (Puccini). **9.55,** News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** and by **W2XAD** (see Short-Wave List).—**7.30 p.m. to 12 Midnight, New York** Relay. **7.30,** Muted Strings. **7.45,** Three Shades of Blue—Male Trio. **8.0,** Sonata Recital. **8.15,** Famous Loves. **12 Midnight,** New Kenmore Hotel Orchestra. **12.15 a.m. (Saturday),** Stock Reports. **12.30 to 1.30, New York** Relay. **12.30,** Drifting and Dreaming. **12.45,** The Goldbergs. **1.0,** Cities Service Concert. **1.30, WGY** Farm Forum. **2.0,** Best Foods, from **New York.** **2.30,** Leo Reisman's Orchestra, followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres.—11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40** (from **Berne**), Orchestral Concert. **12.35 p.m.,** Weather and Exchange. **12.40 to 2.30,** No Transmission. **2.30** (from **Basle**), Quartet Concert. **3.30** (from **Basle**), Programme for Children. **4.0** (from **Basle**), Variety Music on Gramophone Records. **4.30,** Weather Report. **4.32 to 5.30,** No Transmission. **5.30** (from **Berne**), Reading. **6.0,** Time, Weather, Market Prices, Tourist Report, and Announcements. **6.20** (from **Berne**), Recital of Yodels. **6.40** (from **Berne**), Don Carlos—Opera in Four Acts (Verdi), relayed from the Municipal Theatre, with Introductory Talk. In the interval at **8.30** (approx.), Weather and News. **10.0** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

RADIOTJANST (SASA), 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 212.5 kc/s, 1354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 544 kc/s, 542 metres.—4.0 p.m.,** Weather Report. **4.5,** Folk Music relayed from **Falun, 977 kc/s, 307 metres. 4.30,** Reading. **5.0,** Popular Music on Gramophone Records. **5.45,** A Microphone Report. **6.0,** Talk. **6.15,** Weather and News. **6.30,** Political Talk, relayed from **Göteborg. 7.0,** Choral Concert, conducted by Heikki Klemetti. **7.45,** Talk on Foreign Politics. **8.5,** Variety Programme. **8.45,** Weather and News. **9.0,** Chamber Music (relayed from **Göteborg**): Soloist: Lars Fermaens (Violin); Concerto grosso in D Minor (Vivaldi); Concerto in A Minor for Violin and Strings (Bach); Suite for Strings (Ahlberg); Variations on a Tchaikovsky Theme (Arensky). **10.0 (approx.),** Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**10.30 a.m.,** Gramophone Concert: Slav March (Tchaikovsky); Canzonetta (Tchaikovsky); Clochette (Pagananini); Capriccio in F Minor (Dohnanyi); Prelude in C Sharp (Rachmaninov); Viennese Rhapsody (Schmidt); Polovtsian Dances from Prince Igor (Borodin); Selection from Czar Saltan (Rimsky-Korsakov); Night on the Bare Mountain (Mussorgsky); L'apprenti Sorcier (Ducas); Baba Yaga (Liadov). **11.45,** News. **12 Noon,** Time and Exchange. **12.5 p.m.,** Orchestral Concert, conducted by Maurice de Villers: Overture, Anacreon (Cherubini); Selection from Don Carlos (Verdi); In the Steppes of Central Asia (Borodin); Orchestral Suite, Bouton d'or (Pierné); Selection from La Glaneuse (Fourdrain). **1.0 to 3.45.** Interval. **3.35,** Literary Talk in French. **4.0,** Concert of Jazz Music, conducted by Roskam. **5.0,** Trio Concert, relayed from **Lille, 1,130 kc/s (265.4 metres). 6.0,** Topical Talk in German. **6.15,** Light Music on Gramophone Records. **6.30,** Time and News. **6.45,** Rossini Concert on Gramophone Records: Overture and Six Airs from The Barber of Seville; Overture, William Tell. **7.20,** Lottery Results. **8.0,** Matinée d'amour—Musical Play (Jules Mazellier), relayed from **Toulouse P.T.T., 1,175 kc/s (255 metres). 10.0** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by **Freiburg, 527 kc/s, 570 metres.—12.30 p.m.,** Concert from **Langenberg. 1.0,** Sponsored Concert arranged by the Post Office. **1.30,** Advanced English Lesson. **2.0 to 4.0,** Interval. **4.0,** Concert by the Baden Academy of Music: Pianoforte Sonata in D, Op. 53 (Schubert); Two Pieces from the Nine German Arias, for Voice, with Obbligato Violin and Bass Accompaniment (Händel): (a) Süsse Stille, (b) Meine Seele hört im Sehen; Second Movement from the Concerto in E Minor, Op. 46, for 'Cello and Pianoforte (Grützmacher); Max's Aria from Der Freischütz (Weber); Songs for Baritone (Brahms): (a) Waldeinsamkeit, (b) Sapphische Ode; Mephisto-Walzer for Pianoforte (Liszt). **4.50,** Time, Weather, and Agricultural Notes. **5.0,** Talk: Twenty-five years of Aerological Research at Lake Constance. **5.25,** Talk: A Gift for Music. **5.50,** Time and News. **6.5,** Suggestions for Sunday Walks, by Rudolf Höllwarth. **6.20,** Choral Concert of South German Folk Songs. **7.0,** Intermittent Springs in Swabia—Radio Sequence. **7.40** (from **Karlsruhe**), Concert of Military Music by a Police Band. **8.30,** Pianoforte Recital by Hubert Giesen: Waltzes by Schubert, Brahms, Chopin and Johan Strauss. **9.10,** Time, News, Weather, Programme Announcements and Sports Notes. **9.30,** Talk by Kurt G. Sell: What People are talking about in America, relayed from **America. 9.45,** Dance Music by the Stuttgart Philharmoniker. **11.0** (approx.), Close Down.

SUNOSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—**5.15 p.m.,** Instrumental Solos: Pianoforte Solo: Waltz in D (Chopin); Harp Solo: First Arabesque (Debussy); Violin Solo: Tes yeux (Bonincontro); Guitar Solo: Folie (Malaci). **5.30,** Music from Sound Films. **5.45,** Tourist Talk. **6.0,** Opera Music for Orchestra: Ballet Music from The Damnation of Faust (Berlioz); Prelude to Act I of Lohengrin (Wagner); March from The Valkyries (Wagner). **6.15,** News, Racing Results and Market Prices. **6.25,** Local News. **6.30,** Operetta Music. **6.45,** Accordion Music. **7.0,** Light Orchestral Concert. **7.30,** Opera Music: Aria, Je suis Titania, from Mignon (Thomas); Two Arias from Manon (Massenet); Aria from Cosi fan tutte (Mozart). **7.45,** Peer Gynt Suite (Grieg), by the Symphony Orchestra. **8.15,** Light Music. **8.30,** Music by a Viennese Orchestra: Waltz, Ever or Never (Waldteufel); In the Shadows (Finck); Chanson triste (Tchaikovsky). **8.45,** Music from Opera: Airs from (a) Faust (Gounod), (b) Hérodiade (Massenet), (c) Sigurd (Reyer). **9.0,** Military Music. **9.15,** North African News. **10.0,** Operetta Music. **10.15,** Humorous Songs. **10.30 to 11.0,** Programme in English by the I.B.C., W. Brown-Constable announcing: Always in my Heart; Just an Echo in the Valley; Herc's hoping; A little Street where old Friends meet; Wheezy Anna; Mimi; Night after Night; Isn't it Romantic? **10.57,** I.B.C. Goodnight Melody. **11.0,** Weather and Announcements. **11.5,** Music by an Argentine Orchestra. **11.15,** Military Music. **11.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**3.0 p.m.,** See **Rome. 5.35 to 6.35,** See **Turin. 6.35,** Light Music from the Café Dante. **7.0** (approx.) till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.—3.0 p.m.,** See **Rome. 5.35,** Giornale Radio, Agricultural and Dopolavoro Notes. **6.5,** Giornale Radio. **6.30,** Time, Announcements, Report of the Royal Geographical Society. **6.35,** Gramophone Records of Popular Music. **7.0,** Giornale Radio and Weather, and Gramophone Records (contd.). **8.0,** Symphony Concert, conducted by Arrigo Pedrollo. Soloist: Arrigo Serato (Violin). Talk in the interval. **10.0,** Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and **5.969 kc/s, 50.26 metres (Evening); 10 kW.—10.0 to 10.15 a.m.,** Religious Information in German. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.—3.40 p.m.,** Concert conducted by Isy Geiger: Overture (Michael Weiss); Potpourri, Suum cuique (Johannes Evert); Pianoforte Solos: (a) Von Rosen ein Ringelein (Walter Pfeuffer), (b) Vor einer alten Spieluhr (Müller-Melborn); Song from Rosen im Schnee (Jascha-Loewe); Pasodoble, Mia bella (Erwin Straus); Hungarian Song Potpourri, Spiel', Zigeuner (Geiger-Sandor); March, Der Sieger (Gustav Macho). **5.10,** Talk: The German Customs Union. **5.30,** A Report on Travelling and Foreign Traffic. **5.45,** Report of the Austrian Cyclists' Association. **6.0,** Weekly Report on Physical Culture. **6.10,** Talk, Petroleum Wells in Austria. **6.25,** Time, Weather, and Programme Announcements. **6.35,** Talk: Great Men of History—Bismarck and the New German Empire. **7.0,** Concert by the Vienna Symphony Orchestra, conducted by Leopold Reichwein: Overture, The Thieving Magpie (Rossini); Symphony in C Minor, No. 9 (Haydn); Carneval (Leopold Wellela); Symphonic Poem, Till Eulenspiegel's Merry Pranks, Op. 28 (R. Strauss). **8.20,** Music from Paper. **8.50,** News. **9.5,** Road Report. **9.10,** Concert from the Hotel Krantz-Ambassador.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Fanfare from the Tower of St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Light Music on Gramophone Records. **12.20 p.m.,** Weather Forecast. **12.25 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.25,** Aviation Report and Anti-Gas Drill. **2.30,** Naval and Colonial Report. **2.35,** Review of Periodicals. **2.50,** Popular Music on Gramophone Records. **3.20,** Talk on History. **3.40,** Talk on Marconi, relayed from **Lwow, 788 kc/s (381 metres). 4.0,** Violin Recital by Karin Rossander: Sonata, Il trillo del Diavolo (Tartini); La Folia (Corelli); Variations on a theme by Corelli (Tartini-Kreisler); Ave Maria (Schubert-Wilhelmi); Air on the G String (Mattheson-Burmester); Caprice Viennois (Kreisler); Grave (Brenda); Hungarian Dance in D Minor (Brahms-Joachim); Valse mignonne (Juon); Zigeunerweisen (Sarasate). In the interval, Announcements. **4.55,** Programme Announcements. **5.0,** Talk: Wyspianski. **5.20,** News. **5.25,** Light Music. **6.0,** Miscellaneous Items. **6.20,** Agricultural Press Review, relayed from **Wilno, 533 kc/s (563 metres). 6.30,** Feuilleton. **6.45,** Radio Journal. **7.0,** Talk on Music. **7.15,** Symphony Concert by the Philharmonic Orchestra, conducted by G. Fitelberg; Soloist: Alfred Cortot (Pianoforte): Concerto grosso in G Minor, No. 6 (Händel); Pianoforte Concerto in F Minor (Chopin); Symphonic Poem, Feste di Roma (Respighi); Polonaise in E Flat (Chopin). In the interval, Literary Talk. **9.40,** Sports Notes. **9.45,** Radio Journal. **9.55,** Aviation Weather Report and Police Notes.

ZURICH.—See **Schweizerischer Landessender.**

SATURDAY

APRIL THE FIRST

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Running commentary on the Boat Race. Variety programme.
LONDON REGIONAL	Scotland *v.* England. Running commentary on Association Match from Glasgow. "Chopin," a play by W. Rooke-Ley and C. Martin.
MIDLAND REGIONAL	Musical comedy programme.
WEST REGIONAL	Orchestral and choral concert.
SCOTTISH REGIONAL	"The Radioptimists in Gum Trees," a revue by R. McDougall.
BELFAST	Three plays: "The Doctor's Bottle," "The Green Field," and "The Twisted Smile," by T. Kelly.

ABROAD

BRUSSELS (No. 1)	7.30 p.m. Operetta: "The Girl in the Taxi" (Gilbert), from Verviers.
BRUSSELS (No. 2)	7.30 p.m. Concert from the Conservatoire, Brussels.
HAMBURG	7.30 p.m. Bismarck Memorial Concert.
HUIZEN	7.50 p.m. Operetta: "Ball im Savoy" (Abraham), from Groningen.
PALERMO	7.45 p.m. "La Casa innamorata" (Lombardo).
PITTSBURGH	1.15 a.m. (Sunday). The Boston Symphony Orchestra, from New York.
STRASBOURG	9 p.m. Concert of light music, relayed from Mulhouse.
STUTTGART	7.15 p.m. Operetta: "Gipsy Love" (Lehar).
TOULOUSE	8 p.m. Extract from Operetta: "La Fille de Madame Angot" (Lecocq).
TURIN	7.45 p.m. Operetta: "Rompicollo" (Pietri).
VATICAN CITY	9.30 a.m. The Opening of the Holy Door. Relayed from St. Peter's, Rome.

ALGIERS

825.3 kc/s, 364 metres; 13 kW.—**7.0 p.m.,** Financial News. **7.10,** Shipping Notes. **7.15,** Weather Forecast and Agricultural Notes. **7.20,** Songs from Carmen (Bizet). **7.55,** News Bulletin. **8.0,** Time Signal. **8.2,** Tourist Talk. **8.15,** Sound Film Music. **9.30,** Talk arranged by the Automobile Club. **8.35,** News Bulletin, **8.40,** Concert of Light Music by the Station Orchestra. **9.40,** News Bulletin. **9.45,** Variety Music. **9.55,** Wireless Notes. **10.0,** Dance Music relayed from the Hotel Aletti.

ATHLONE

725 kc/s., 413 metres; 60 kW.; and **CORK, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **2.45 to 4.30,** Running Commentary on the International Rugby Match, Ireland *v.* Scotland, relayed from Lansdowne Road. **6.15,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31** Poetry Readings. **7.45,** Gaelic Talk. **8.0,** The Station Orchestra. **8.20,** Choral Concert by Kennedy's Choir. **8.40,** The Station Orchestra. **8.55,** P. J. O'Connor Duffy reads his own Short Stories. **9.20,** Vocal and Instrumental Music. **9.45,** Concert by the All Ireland Instrumental Trio. **10.15,** Irish Marches, by the Station Orchestra. **10.30,** Time Signal, News Bulletin, Weather Report, and Close Down.

BARCELONA

RADIO BARCELONA; Call EAJ1; 860 kc/s, 348.8 metres; 8 kW.—**6.0 p.m.,** Programme for Children. **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations and Catalan Grammar Lesson. **8.0,** Popular Music on Gramophone Records, and News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **9.5,** Concert by the Station Orchestra: Popular March (Canals); Tendresse (Delmas); Zur Johannesnacht (Grieg); Serenade from Don Giovanni (Mozart). **9.30,** A Musical Comedy, relayed from **Madrid (EAJ7). 11.0** (in an interval). News Bulletin.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Report, Tourist and Dopolavoro Notes. **7.20,** Giornale Radio. **7.30,** Time and Announcements. **7.35** (approx.), Concert of Songs and Operetta Music. In the interval, Reading from The Book of Dreams (Veneziani). **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**4.0 p.m.,** Popular Music on Gramophone Records. **5.55,** Time and Programme Announcements. **6.0,** Talk. **6.40,** Introductory Talk to the Following Transmission. **6.50,** Der Waffenschmied—Opera (Lortzing). **9.30** (approx.), News and Relay of European Stations.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 40 kW.—**12.45 p.m.,** News. **1.0,** Gramophone Concert of Request Music relayed from **Berlin (Witzleben). 2.0,** Handwork for Children. **2.30,** Weather and Exchange. **2.45,** Reading: Die drei Schneiderinnen (H. F. Blunck). **3.0,** Reading: Kaspar auf der Frühlingsweise (Hans Niggemann). **3.30,** See **Hamburg. 4.10,** Talk: Bismarck and the Present Day. **5.0,** Pianoforte Recital by Hermann Hoppe: Kinderszenen (Schumann); Polonaise in A Flat (Chopin). **5.30,** Reading. **5.55,** Weather for Farmers and Announcements. **6.0,** The Quiet Hour: Have you a Sense of Humour? **6.30,** A Poem. **6.35,** Harpsichord Recital by Anna Barbara Speckner: Passamezzo Variations (Sheidt); Suite (Casella): (a) Prelude, (b) Waltz, (c) Canone, (d) Polero, (e) Carillon, (f) Galop finale. **7.0,** See **Langenberg. 8.0,** Des toten Bombergs Kumpanei—a Humorous Ghost Play (Ernst Keienburg). **9.0,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Programme from **Munich. 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**3.0 p.m.,** Wind Instrument Concert, conducted by Johannes Fuhsel: March, Jugend marschiert (Hanfstaengl); Overture, Stradella (Flotow); Waltz, Münchener Kindl (Komzak); March, Am Freiheitsmorgen (Gudohr); Aschenbrödels Brautzug (Dicker); Bayerischer Defiliermarsch (Scherzer); Overture, Light Cavalry (Suppé); Parade March (Joh. Strauss); Song Potpourri (Rathke); March, Deutscher Föhn (Hanfstaengl); Potpourri, Jung Deutschland (Weninger). **4.0,** Talk on the Oxford and Cambridge Boat Race. **4.10,** Report of the Oxford and Cambridge Boat Race (on Gramophone Records). **4.25,** Concert (contd.): March, Fridericus Rex (Radeck); Waltz, The Blue Danube (Joh. Strauss); Selection from Die Fledermaus (Joh. Strauss); March, Preussens Gloria (Piefke); Selection from La Traviata (Verdi-Schreiner); Volk ans Gewehr (Pardun); Die Fahne hoch (Wessel). **5.0,** The Lost Atlantis—A Sketch (Herbert Ulbricht). **5.50,** Announcement. **5.55,** The Witzleben Station informs its Listeners . . . **6.0,** Topical Talk. **6.10,** At Bismarck's House—a Radio Report relayed from Schönhausen. **7.0,** April—a Variety Programme in Aid of the Winter Relief Fund, relayed from the Stadthalle, Magdeburg. **9.0,** Weather, News, and Sports Notes. **9.15** (approx.). Dance Music relayed from the Stadthale, Magdeburg. **10.30,** Dance Music Relay. **11.30** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BOOO.—See **Oslo.**

BORDEAUX-LAFAYETTE

PTT, 986 kc/s, 304 metres; 13 kW. **6.40 p.m.,** Sports Talk. **6.45,** Talk on Economics. **7.0,** News Bulletin, Exchange Quotations and Market Prices. **7.5,** English Lesson. **7.20,** News Bulletin. **7.30,** Light Music on Gramophone Records. **8.0,** Zaza—Play in Five Acts (Berton and Simon).

BRATISLAVA

1,076 kc/s 297 metres; 14 kW.—**3.10 p.m.,** Leopold Concert by the Station Orchestra. Conductor: J. Odehäzel. **4.10,** See **Prague. 4.20,** Light Music on Gramophone Records. **4.45,** Talk on Baku. **5.0,** Concert of Light Music by the Pour and Türinger Schrammel Quartet. **5.45,** Talk for Housewives. **6.0 to 6.10,** See **Prague. 6.25,** See **Moravská-Ostrava. 7.5,** See **Prague. 9.15,** See **Moravská-Ostrava. 10.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc/s, 253 metres.—8.45 a.m.,** Navy Day. Launching of the Battle Ship Deutschland, relayed from **Wilhelmshaven. 9.30,** See **Vatican City. 10.15,** Time, Weather, News and Tides. **11.0,** Launching of the Second Battle Ship B, relayed from **Wilhelmshaven. 11.30,** Concert, relayed from **Heilsberg. 12.5 p.m.,** Weather for Farmers, followed by Popular Music on Gramophone Records. **12.45,** Time, Weather, News and Exchange. **1.5,** Variety Music on Gramophone Records. **1.45,** Programme arranged by the Post Office with Gramophone Records. **2.10,** Agricultural Prices. **3.0,** Programme to be announced. **3.30,** See **Hamburg. 4.30,** Book Review. **4.50,** Talk: The Town of Meran. **5.10,** Talk on Wireless. **5.30,** Gramophone Concert of Opera Music: Prelude to Aida (Verdi); Aria from Aida (Verdi); Bell Chorus from I Pagliacci (Leoncavallo); O mimi, tu più non torni from La Bohème (Puccini); Intermezzo from Madame Butterfly (Puccini); Aria from Rigoletto (Verdi). **6.10,** See **Berlin (Witzleben). 7.0,** Weather for Farmers. **7.5,** Funkball der Instrumente, Words by Fritz Joachim and Music by Hans Sattler. The Station Orchestra conducted by Ernst Prade. **7.50,** Announcements. **8.0,** Variety Programme relayed from **Langenberg. 9.0,** Time, Weather, News, Sports Notes and Programme Announcements. **9.30,** Dance Music from **Berlin (Witzleben). 11.0** (approx.). Close Down.

BRNO

878 kc/s, 342 metres; 35 kW. **5.0 p.m.,** Theatre and Film Notes. **5.15,** See **Prague. 5.25,** German Transmission: News and Light Music on Gramophone Records. **6.0,** See **Prague. 6.10,** Talk on Sports. **6.25,** See **Moravská-Ostrava. 7.5,** See **Prague. 9.15,** See **Moravská-Ostrava. 10.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R.; 590 kc/s, 509 metres; 15 kW.—**11 a.m.,** Concert by the Small Orchestra, conducted by P. Leemans: Overture, Die Frau Meisterin (Suppé); Suite, Conte d'avril (Widor); Serenade, El mi amor (Marguttì); Selection from Romeo and Juliet (Gounod); Violin Solo, Guitare (Moszkowsky-Sarasate); Arabesque (Montague Phillips); Selection from The Desert Song (Romberg). **12 Noon,** Le Journal Parlé. **12.10,** Concert relayed from the Grand Hotel, Antwerp. **4.0,** Concert by the Radio Orchestra, conducted by C. Walpot: Hungarian March (Berlioz); Waltz, Moonlight on the Alster (Fetras); Overture, Masaniello (Auber); Rêverie for Violin and Orchestra (Vieuxtemps); Selection from Lakmé (Delibes); Intermezzo, Bruissement sous bois (Razigade); Symphonic Poem, Le Rouet d'Omphale (Saint-Saëns); Ballet Music from Le Cid (Massenet). **5.0,** Talk: Walloon Folklore. **5.15,** Concert by the Small Orchestra, conducted by P. Leemans: Petite Suite No. 2 (Gilson); Nocturne (Brenta); Scènes enfantines (Strens); Poème for 'Cello (Guillaume). **5.45,** The Marriage of Mlle. Plume—Sketch (Jean de Comne). **6.0,** Concert (contd.): Aspiration for Strings (Dubois); Chevauchée fantastique (Brenta). **6.15,** Talk on London. **6.30,** Review of International Events, and Talk for Pigeon Fanciers. **7.0,** Variety Programme. **7.30,** The Girl in the Taxi Operetta (Gilbert), relayed from the Grand Theatre, Verviers. In the intervals at **7.55,** Light Music on Gramophone Records; at **9.30,** Le Journal Parlé; and at **9.40,** Dance Music on Gramophone Records. **10.20,** Light Music on Gramophone Records. **11 p.m.,** Close Down.

BRUSSELS (No. 2)

N.I.R.; 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**11.0 a.m.,** Concert relayed from the Grand Hotel, Antwerp. **12 Noon,** Le Journal Parlé. **12.10 p.m.,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Der Bettelstudent (Millöcker); Serenata (Tarenghi); Selection from Paganini (Lehár); Pianoforte Solos (MacDowell): (a) Prelude, (b) Witches' Dance; Waltz (Abraham); Hungarian Rhapsody No. 14 (Liszt). **4.0,** Dance Music relayed from the St. Sauveur Palais de Danse. **5.15,** Talk on Charlemagne. **5.30,** Recital of Songs to the Lute by M. Tournemel. **5.50,** Gramophone Records: La Péri (Dukas). **6.10,** Talk: What the Flemish Tourist should see in Holland. **6.30,** Film Review. **7.0,** Viennese Music on Gramophone Records: Overture, Die Fledermaus (Joh. Strauss); Selection from The Count of Luxembourg (Lehár); Selection from The Merry Widow (Lehár); Selection from The Last Waltz (O. Straus). **7.30,** Concert by Former Pupils of the Conservatoire, relayed from the Conservatoire. In the intervals, Programme by A. Remes and Le Journal Parlé. After the Relay, Orchestral Concert relayed from the Mendiue Hall, Antwerp. **11.0,** Close Down.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW. Programme also relayed on **840 metres** from **6.50** (approx.) to **11.0 p.m.—4.30 p.m.,** Jazz Music on two Pianofortes. **5.10,** A Dialogue. **5.40,** Choral Concert. **6.20,** The Letter Box. **6.50,** Verdi's Less Familiar Arias—Recital by Wilhelm Gregor: Arias from I due Foscari, Attila, Macbeth, Sicilian Vespers, and Don Carlos. **7.20,** Talk. **8.0,** Variety Programme. **10.0,** Cigany Concert from the Café Sporarich.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by **Kalundborg, 260 kc/s, 1,153 metres.—11.0 a.m.,** Time and Chimes from the Town Hall. **11.5,** String Ensemble Concert, relayed from the Wivex Restaurant. **1.0 to 1.30,** Interval. **1.30,** Gramophone Concert. **2.0** Programme for Children. **2.30,** Concert by Louis Preils' Instrumental Ensemble. Soloist: Solveig Skalka (Songs); March (Kreuzberger); Cuban Love Song (Stothart-Hugh-Fields); Italian Serenade (Cahudi); To maa man vaere (F. Henriques); Potpourri, Fahr ins Blaue (Dostal); Manhattan Serenade (Alter); Novelty Foxtrot, Dancing Stars (Rawicz); Songs: (a) Serenade (Drigo), (b) Song (Spolianskv), (c) Ekko vil du svare mig (Enders), (d) Please (Rainger), (e) Det hele er et Eventyr (Munando), (f) Song from A Kiss in Spring (Kálmán); Pianoforte Novelty, Go on (Rawicz); Waltz, Napoli (Murzilli); Selection from Miss Denmark (Howalt); Ja, der Himmel über Wien (Fall); Waltz, Souvenir de Semmering (Lukeste); Anelito d'amore (Leoncavallo); Blaue Flamme (Grofe); Annemarie (Alexanoff-Heinz). **4.40,** Exchange and Fish Market Prices. **5.0,** Time and Chimes from the Town Hall. **5.5,** Talk. **5.20,** French Lesson. **5.50,** Weather Forecast. **6.0,** News. **6.15,** Time Signal. **6.30,** Talk: Young People and their Leisure Hours. **7.0,** Chimes from the Town Hall. **7.5,** Concert of Viennese Dances by the Station Orchestra, conducted by Fritz Mahler. March from The Gipsy Baron (Joh. Strauss); Waltz, Wienerblut (Joh. Strauss); Gallop, Kosackenritt (Millöcker); Polka, Tritsch-Tratsch (Joh. Strauss); Military March No. 2 in G (Schubert); French Polka (Joh. Strauss); Waltz, Wiener Mad'ln (Ziehrer); Polka (Joh. Strauss). **7.50,** Reading. **8.10,** Folk Music by the Station Orchestra. Marosszeker Tänze (Kodaly); Romanian Folk Dance (Bartok); Ritirica ostinata (Vogel); Russian Folk Melody (Liadov). **8.50,** The Artist and the Young Woman—Sketch (Franz Molnar). **9.5,** News. **9.20,** Orchestral Concert. **9.50,** Dance Music relayed from the National Scala. In the interval at **11.0,** Time and Chimes from the Town Hall. **11.15** (approx.), Close Down.

CORK.—See **Athlone.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW. **6.0 p.m.,** Miscellaneous Items and Announcements. **6.15,** Review of Foreign Politics. **6.30** to Close Down. See **Warsaw. 12 Midnight** (approx.), Close Down.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11.0 a.m.,** Light Music on Gramophone Records. **11.30,** News Bulletin. **11.45,** Concert of Popular Music. **5.30 to 7.0,** Programme in English by the I.B.C. C. Danvers-Walker, B. McNabb, and F. Lamping announcing. Times subject to alteration. **5.30,** Concert of Popular Songs for Isle of Thanet Listeners: You're calling me over the Sea; This is Heaven; Smiling Irish Eyes; La Cumparsita; On Top of the World; Dream Mother; Lily of Laguna; Old Vienna Moon. **6.0,** Octet Concert for Dover Listeners: Extase; The Piccaninnies' Picnic; Serenade; Twilight on the Waters; Träumerei; The Butterfly; Humoresque; The Grasshopper's Dance. **6.30,** Military Band Concert for Folkestone Listeners; Overture; Masaniello (Auber); March; Step lightly; In a Chinese Temple Garden (Ketelbey); Wiesbaden March; Sanctuary of the Heart (Ketelbey); En Promenade; Overture, Poet and Peasant (Suppé); Highland Scene. **7.0,** Local News and Popular Music on Gramophone Records. **7.30,** Radio Gazette. **8.0,** The Listeners' Hour and News. **9.0,** Concert. **10.0,** Café Concert. **11.0** till Close Down, Programme in English by the I.B.C. Times subject to alteration. **11.0,** International Broadcasting Club Concert of Special Request Items. Orchestra: Shamrock Land; Please; Song: Come Back to Erin; Selection

from Floradora; Song: The Rose of Tralee; Selection from Chu Chin Chow; Rakes of Clonmel Jig; Let's put out the lights and go to sleep. **12 Midnight,** Variety Concert: Snatches of Song; Baby won't you please come home?; Our little Nipper; Problems; I'm fading away; The Haunted Room; Show Boat Blues. **12.30 a.m. (Sunday),** Popular Songs: My Fate is in your Hands; Melody Divine; Mona; The Skaters' Waltz; Darling Old Mother of Mine; Dark Red Roses; A Convict's Dream; Give me my Heart. **1.0,** Concertina Solos: Lopeziana; Irish Medley; Marilyn; Scottish Reels; Harmonica Duet; Polly; Hornpipe Medley; Bonnie Lass o' Bon Accord; Orange and Blue. **1.30,** Popular Songs: Around the Corner; Granny's Old Armchair; I'm betting the Roll on Roamer; Xylophone Solos: (a) The Huntsman, (b) Handsome Gigolo; Down the Railroad Track; Little Brown Jug; Xylophone Solo: Looping the Loop. **2.0 (Sunday),** Dance Music; Today's the Day; Round the Marble Arch; By the Bend of the River; Paradise; Good-night, Vienna; Hurt; Just another little Dream of you; Potpourri; Up with the Show; When the Band Goes Marching by; It ain't no Fault of Mine; I wonder why; Lullaby of the Leaves; Five minutes to Twelve; Bathing in the Sunshine. **2.57,** L.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG. See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW. Relayed by **Cassel, 1,220 kc s, 245.9 metres. 2.30 p.m.,** See **Stuttgart. 3.50,** Economic Notes. **4.0,** Concert from **Stuttgart. 5.15,** Economic Notes. **5.25,** Dialogue between August Winnig and Friedrich Westphal: The Development of the German Labour Movement. **5.50,** Discussion between Werner Kutz and Paul Krannhals: What is meant by Organic Thought? **6.15,** Time, Programme Announcements, Weather, and Economic Notes. **6.30,** Bismarck—a Portrait. **7.15,** See **Stuttgart. 9.15,** Time, News, Weather, and Sports Notes. **9.45,** See **Munich. 11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ. See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

(du, in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc s, 269.8 metres; Flensburg, 1,319 kc s, 227.4 metres; Hanover, 530 kc s, 566 metres;** and **Kiel, 1,292 kc s, 232.2 metres.—3.30 p.m.** from **Bremen),** Wind Instrument Concert, conducted by Fredo Niemann; March, Hurra die Garde (Blankenburg); Overture, Poet and Peasant (Suppé); Paraphrase on Ein Vöglein sang im Lindenbaum (Eberle); König-Karl-Marsch (Urath); Selection from Lohengrin (Wagner); March (Häferle); Hungarian Dance, No. 5 (Brahms); Potpourri, From the Rhine to the Danube (Rhode); March. **4.30,** Talk: The Younger Generation. **4.55** (from **Hanover),** Extracts from Morgen geht's uns gut—Musical Play (Benatzky). **6.0,** Talk: Australia as a Centre of the Air Traffic. **6.25,** Weather Report. **6.30,** Concert by the Station Chamber Orchestra, conducted by Gerhard Maasz. Soloist: Gerhard Gregor (Organ). **7.30,** Bismarck Memorial Concert. The Orchestra of the Hamburg Ex-Servicemen's Union, conducted by Spielberg. Addresses by Herr von Fabeck and Herr Kiekbusch. **9.0,** Time, Weather and News. **9.20,** Discussion on the Protection against Gas. **9.30,** Dance Music from the Sagebiels Festsäle. **10.20,** Ice Report.

HANOVER.—See **Hamburg.**

HEILSBERG

1,685 kc s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc s, 453.2 metres.—12.5 p.m.,** Gramophone Concert. In an interval at **12.20,** News. **1.30,** Programme arranged by the Post Office with Gramophone Records. **2.0,** Agricultural Prices and Exchange. **2.30** (from **Danzig),** Programme for Children. **3.0,** Concert by the Small Orag Orchestra: Overture, Ali Baba (Cherubini); Second Italian suite (Becce); Waltz, Sehnsucht (Henning); Zwischen Dur und Dujestre (Lenzehner); Finale from Ariele, die Tochter der Luft (G. Bach); Potpourri, Magyar dalok (Lehar); Rheintöchter-Walzer (Sandolicker); Oriental Sketch, Oase (Wismar); Klabautermann-Intermezzo (Lindemann). In an interval at **4.0** (approx.), Film Notes. **4.35,** Talk: Making April Fools Now and the Past. **5.0,** Programme Announcements. **5.10,** Programme Announcements in Esperanto. **5.15,** Agricultural Prices. **5.20,** Ice Report. **5.25,** Market Prices. **5.35,** Talk: Why should the Experienced Salesman attend a Trade School? **6.0,** Schubert Song Recital by Maria von Basilides: Die Mutter Erde; Nacht und Träume; Geheimnis; Die Forelle; Nachtstücke; Liebe schwärmt; Die Liebe hat gelogen; An die Laute; Der Schmetterling. **6.30,** Talk by Dr. Ferdinand Neumann, the Founder of the East Prussian Deaf and Dumb Institute. **6.55,** Weather and News. **7.0,** See **Langenberg. 9.30,** Dance Music from **Berlin (Witzleben). 11.30** (approx.), Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.). 11.40 a.m.** till Close Down Programme of the Workers' Radio Society (V.A.R.A.). **11.40,** Concert by the Little V.A.R.A. Orchestra conducted by P. Duchant. **1.55 p.m.,** Popular Music on Gramophone Records. **2.30,** Technical Talk. **2.50,** Trio Concert: Trio No. 7 (Mozart); Dumky Trio Op. 90 (Dvorák). **3.40,** Concert by De Flierefluiters conducted by Hugo de Groot. **4.10,** Talk. **4.30,** Programme of Songs by P. Collin and H. Snurop. **4.45,** Organ Recital by Johan Jong. Selections from The Geisha (Jones). Talk. Glow-worm Idyll (Siedet); Serenade (Lange); Curly Locks (Powell). **5.20,** Literary Talk. **5.40,** Concert by De Flierefluiters conducted by Hugo de Groot. Vielleicht ist du das grosse Glück (Erwin); Signora aus Spanien (May); The Juggler (Groitzsch); Annabel Lee (Nelson); Atlantis (Rohrecht); Russian Fantasia (Walter); Waltz (Dur and Hayfish); I don't want to go to Bed (Lupino); V.A.R.A. March (de Groot). **6.10,** Concert by De Wielewaal Choir conducted by P. Tiggers. **6.40,** V.R.O. Programme. **7.40,** Demonstration by M. G. Cavalozzi of the Translating Machine, German-Olando Translacteriophone. **7.50,** Ball im Savoy-Operetta (Abraham) relayed from the Municipal Theatre, Groningen. In the interval at **8.50,** Recitations. **10.20,** News. **10.30,** Concert by the V.A.R.A. Orchestra conducter by Hugo re Groot. Marche lorraine (Gaume); In lauschiger Nacht (Ziehrer); Offenbach Potpourri (Urbach). **10.55,** Variety Items. **11.0,** Concert (contd.). Selection from Flotte Bursche (Suppé); Potpourri, From A to Z (Geiger); La petite Tonkinoise (Scotto); Chinese Street Serenade (Suede); Selection form The Vagabond King (Friml). **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc s, 1,875 metres; 8.5 kW.—**11.55 a.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). **11.55,** Concert by the K.R.O. Orchestra, conducted by M. van 't Wond. **1.40,** Programme for Young People. **2.10,** Programme for Children. **3.40,** H.I.R.O. Programme. **4.40,** Concert by the Harlem Salon Orchestra, conducted by J. Stoffer. **6.0,** Press Review. **6.20,** Concert (contd.). **6.50,** Talk. **7.10,** Police Notes. **7.25,** Sports Notes. **7.40,** Concert by the K.R.O. Boys, conducted by P. Lustenhouwer: Sevilla (Abraham); Die Fenster auf der Lenz ist da (May); A Vision of Salomé (Bodewalt Lampe); The Clock is playing (Blaauw); Ich bin in Stimmung (Doelle); Zigeuner, du hast mein Herz gestohlen (Egen and Grothe); Comedy Overture (Keler-Bela); In Gasthaus im goldenen Stern (Rotter); For you, Rio Rita (Santenigini). **8.25,** News Bulletin. **8.30,** Bonneman's Son-in-Law—Radio Play. **9.10,** Concert (contd.): Das ist Wien, und es bleibt immer so (Stolz); Valse poudrée (Popy); Ich will nicht wissen wer du bist (Stolz). **9.25,** Recitations. **9.40,** Concert (contd.): Madrid (Speyer); Wir tanzen Weltschlager (Borchert); Was kann so schön sein (Brodszky); Potpourri, Servus Wien (Dostal); Waltz, Donauwellen (Ivanovici); Tango, Oh Sonja (Mann); Waltz (Romberg); Song from Drei von der Kavallerie (Erwin). **10.40,** Variety Music on Gramophone Records. **11.40** (approx.), Close Down.

INNSCRUCK.—See **Vienna.**

JUAN-LES-PINS

NICE, 1,202 kc s, 249.6 metres; 0.8 kW.—**9.30 to 10.30 p.m.,** Programme in English by the I.B.C. Announcer: H. K. Hitchcock.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc s, 1,795 metres; 10 kW. Relayed by **Helsinki, 815 kc/s, 368.1 metres.—5.15 p.m.,** Concert by the Station Orchestra, conducted by Erkki Linko. **6.5,** Songs by the Station Quartet. **6.30,** Dramatic Programme. **7.0,** Dance Music by the Dallapé Orchestra. **8.15** till Close Down, Dance Music, relayed from the Grand Hotel. **10.0** (approx.), Close Down.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12 Noon, Concert. In the interval at **1.0 p.m.,** News. **1.35,** Popular Music on Gramophone Records. **2.30,** Economic Notes and Time. **2.30,** Programme for Children. **3.10,** Talk: Touring in the Rhineland and Westphalia. **3.30,** English Reading. **4.0,** Choral and Mandoline Concert. Choir: (a) German Folk Song (Schulken), (b) French Folk Song, Marlbrough (arr. Neubner), (c) Swedish Folk Song, Spinn, spinn (arr. (Jüngst), (d) English Folk Song. To a Brook (arr. Waelrent); Mandoline Music: (a) Symphony in E Minor (Wölki), (b) Lorelei Paraphrase (arr. von Stoye); Choir: (a) Die Hütte (Kaun), (b) Dämmerung (Kaun), (c) Golgotha (Neumann); Mandoline Music: Waltz, Münchner Kindl (Komzak); Choir: (a) Abend auf der Heide (Uthmann), (b) Deutscher Glaube (Nagler). **5.20,** Talk on Retail Trade. **5.45,** Weather, Time, Economic Notes and Sports Results. **6.0,** Talk: The Strength and Weakness of Conscience. **6.20,** Topical Talk. **6.30,** Talk: Man and Society. **6.55,** News. **7.0,** Soap Bubbles—an April Revue, arranged by Alfred Erich Sistig. **9.5,** News and Sports Notes. **9.45,** See **Munich. 11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by **Dresden, 941 kc s, 319 metres.—12.15 p.m.,** Mandoline Concert, followed by Exchange Quotations. **1.0,** Wireless Hints and Notes. **1.30,** Programme for Children. **2.15,** Review of Books. **2.45,** Exchange Quotations. **3.0,** Talk on Music. **3.30,** Wind Instrument Concert from **Berlin (Witzleben). 5.0,** Dialogue for Young People: Are we still the Football Generation? **5.30,** German Lesson for Germans. **5.50,** A Modern Dictionary. **6.0,** Extracts from Bismarck's Speeches. **6.15,** Concertina and Accordion Concert. **7.0,** Some Merry Birds from my Garden (Dr. Friedrich Castelle). **7.30,** Concert by the Zwickau Teachers' Choral Society. **8.15,** Humorous Programme with Extracts from Roda-Roda, Fritz Müller-Partenkirchen, Wilhelm Busch, and Others. **9.5,** News Bulletin. **9.20** (approx.), Concert of Light Music and Dance Music by the Emdé Orchestra; Soloist: Fritz Kaulvers (Tenor): Waltz, Es war in Wien (Schattmann); Mazurka in G (Drdla); Gavotte (Rehberg); Waltz, Abend in Wien (Krüger-Donau); Waltz from Frederica (Lehár); Potpourri, Fabelhaft (Schmidt-Hagen); Wenn nur der Rhein nicht wär' (Bungert); Margret am Tore (Jensen); Der Wirt vom Heidekrug (Krome); Overture, Gipsy Love (Lehár); Wiener Zugvögel (Translateur); Selection from Frau Luna (Lincke); Der Schwur (Bohm); Die Katzen und der Hausherr (Plüddemann); Der Papagei (Löwe). **10.0,** Tattoo relayed from **Weimar. 10.30** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW. **6.30 p.m.,** Talk on Philosophy. **7.0,** Concert of Military Music. **9.0,** Time and News. **9.5** (approx.), Concert of Light Music.

LWOW

783 kc s, 381 metres; 16 kW.—**6.10 p.m.,** Miscellaneous Items. **6.30,** See **Warsaw. 10.0,** Concert by a Mandoline Band, conducted by Adam Epler. **11.0** (approx.), Close Down.

LYONS

LA DOUA, PTT, 644 kc/s, 465.8 metres; 1.5 kW.—**6.30 p.m.,** Radio Gazette for Lyons and the South East. **7.35,** Programme relayed from the Salle des Fêtes, Pont de Beauvoisin: Addresses and Musical Programme. News after the Programme.

MADRID

ARANJEUZ (EAQ), 9,860 kc s, 30.43 metres; 20 kW.—Programme for Listeners in the Canary Islands, Guinea and America. **6.0 p.m.,** Concert of Popular Music. **7.15,** Talk. **7.30,** Light Music. **8.0, to 10.30,** Interval. **10.30,** A Musical Comedy relayed from **Madrid (EAJ 7). 11.45,** Radio Chronicle. **12 Midnight** (approx.), Close Down.

MADRID

(EAJ7), 707 kc/s, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations and Request Gramophone Records. **8.15,** News Bulletin. **8.30 to 9.0,** Interval. **9.0,** Linguaphone English Lesson. **9.30,** Chimes, Time Signal and Transmission of a Musical Comedy. Conductor: Alvarez Cantos. **11.45,** News Bulletin. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**5.25 p.m.,** Vocal Quartet Concert. **6.0 to 6.10,** See **Prague. 6.25,** Military Band Concert, conducted by R. Klobouk. **7.5,** See **Prague. 9.15,** Concert of Light Music by the Station Orchestra. **10.30** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc s, 533 metres, 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc s, 560 metres;** and **Nürnberg, 1,256 kc s, 239 metres. —3.10 p.m.,** Orchestral Concert, conducted by Erich Kloss: Ratisbona-Marsch (Schlenk); Ballet Overture (Kremser); Sommerbilder (Gabler); Fantasia, Der ewige Verdi (Rhode); Waltz from Der arme Jonathan (Millöcker); Der Traum der Reservisten (Ziehrer); Waltz, Nima-Nanna (de Micheli); March, Unter dem Doppeladler (J. F. Wagner). In the interval, Running Commentary on the Oxford and Cambridge Boat Race, relayed from **London. 4.50,** Talk for Young People. **5.20,** Chamber Music by the Poltronieri Quartet. Soloist: Udo Dammert (Pianoforte). String Quartet (Donizetti); Pianoforte Quartet in E Flat, Op. 47 (Schumann). **6.10,** Wireless Notes. **6.25,** Zither and Song Recital by August Pletl and G. Pletl: Wiener Künstler-Marsch (Schramml); Overture, Festklänge (Haase); Song: 's Herz in der Brust; Gavotte, Traum am Arbersee (G. Pletl); Song: Lob der Frauen (G. Pletl); Regner Grüsse (G. Pletl). **6.50,** Wireless Notes. **7.10,** Variety Programme: Part I: A Floating Island in the Atlantic; Part II: The Mediterranean dries up; Part III: Prohibition in Bavaria; Part IV: Return from the Moon. **9.20,** Time, Weather, News and Sports Notes. **9.45,** Serenade, conducted by Erich Kloss. **11.0** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc s, 365.8 metres; Hamar, 522 kc s, 574.7 metres; Notodden, 671 kc s, 447.1 metres; Porsgrund, 662 kc s, 453.2 metres;** and **Rjukan, 671 kc s, 447.1 metres.—3.15 p.m.,** Sponsored Concert on Gramophone Records. **4.15,** Programme for Children. **5.15,** Folk Music and Songs to the Hardanger Fiddle. **5.45,** Talk on Economics. **6.0,** Announcements, Weather and News. **6.30,** Talk. **7.0,** Time Signal. **7.1,** Concert by the Station Orchestra, conducted by Hugo Kramm: March, Stars and Stripes (Sousa); Waltz (Lindsay); Russian Fantasia (Schierman); Piece (Svendsen); Talk for Tourists: Selection from The Mikado (Sullivan). **8.40,** Weather and News. **9.0,** Topical Talk. **9.15,** Humorous Recitations. **9.45,** Gramophone Dance Music. **11.0** (approx.), Close Down.

OSTERSUND. See **Stockholm.**

PALERMO

558 kc s, 537.6 metres; 3 kW.—Transmits at intervals from **7.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes and Giornale Radio. **7.20,** Sports Notes. **7.30,** Time Signal and Announcements. **7.45,** La ensa innamorata—Operetta in Three Acts (Carlo Lambardo). In the intervals: Book Review and Announcements. **9.55,** News Bulletin.

PARIS

EIFFEL TOWER, FLE, 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals). **5.45 p.m.,** Talk on Music. **6.0,** Le Journal Parlé. **7.20,** Weather Report. **7.30,** Moi—Comedy (Labiche). **9.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**5.45 p.m.,** Le Journal Parlé. **6.0,** Answers to Correspondence. **6.5,** Variety Music on Gramophone Records. **7.0,** Talk: The Event of the Week. **7.5,** Theatre Review. **7.30,** Chamber Music Concert. **8.10,** Dance Music by the Sonora Orchestra. **10.0,** News. **10.15** (approx.), Gramophone Dance Music. **11.0** (approx.), Close Down.

PARIS

RADIO PARIS; Call CFR, 174 kc/s, 1,725 metres; 75 kW. **5.45 a.m.,** Physical Culture. **6.30,** Weather and Physical Culture (contd.). **6.45,** Popular Music on Gramophone Records. **7.0,** Press Review and Weather. **8.0,** Concert by the Conservatoire Concert Society, relayed from the Conservatoire. **10.30 to 11.30,** Interval. **11.30,** Concert by the Radio Paris Orchestra: Herubin (Auvray); Selection from Ariane (Massenet-Monton); Selection from Venus and Adonis (Fuger-Monton); Selection from Monsieur de Pourceaugnac (Delsaux); Prelude to Faust (Gounod-Auvray); Prelude to Colomba (Busser-Delsaux); Selection from Don Quichotte (Massenet-Mouton); Selection from Mirella (Gounod-Borelli); Entr'acte from Robert Macaire (Chantrier-Salabert); Overture, Pénélope (Fauré-Martin); Cadet Rousselle (Fourdrain); Cassandre (Gabriel-Marie-Ourdine); Colombine (Meignard); Selection from Robert le Diable (Meyerbeer-Fourdrain). In the intervals at **12 Noon,** Exchange, News, and Weather, and at **12.30 p.m.,** Exchange. **1.0,** Exchange. **2.0,** Programme for Children. **2.45,** Exchange and Market Prices. **2.50,** Dance Music by the Radio Paris Orchestra. **5.30,** Market Prices, Weather, Agricultural Report and Exchange. **6.0,** Legal Talk. **6.20,** Agricultural Talk. **6.45,** Commercial Prices and News. **7.0,** Songs of To-day and Yesterday: Variety Programme. **7.30,** News and Weather. **7.40,** Review by René Dorin. **7.45,** Three Comedies: (a) Le serment d'Horace (Murger), (b) Drôle de visite (Mycho), (c) Scènes des tribunaux comiques (Moinaux). In the interval at **8.15,** Press Review and News.

APRIL 1st SATURDAY *continued*

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.** (See Short-Wave List.)—**7.0 p.m.,** Programme to be announced. **10.30,** Behind the Law—Tales of the Pennsylvania Police. **10.45,** Little Orphan Annie, from **New York. 11.0,** Hotel Lexington Orchestra, from **New York. 11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.27,** Strange Facts. **11.29,** Temperature Report—Philadelphia Company. **11.30,** A Recreo by Bill and Alex of the Downtown Y.M.C.A. **11.45,** Fields and Hall, from **New York. 11.59,** Time Signal. **12 Midnight,** Homey and Old-Fashioned Quartet. **12.15 a.m. (Sunday),** Adventures of Aunt Lulu—KDKA Players. **12.30,** Atkinson String Ensemble. **12.45 to 4.0, New York** Relay. **12.45,** Townsend Murder Mystery. **1.0,** American Taxpayers' League. **1.15,** The Boston Symphony Orchestra. **3.15,** Salon Singers. **3.30,** Cuckoos. **4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.13,** KDKA Artist Bulletin. **4.15,** Press Last Minute News. **4.20,** Messages to United Presbyterian Missionaries. **5.20,** Messages to Dwellers Far North.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**3.10 p.m.,** See **Bratislava. 4.10,** Talk on Economics. **4.20,** Czech Lesson for Germans and German Lesson for Czechs. **4.50,** Popular Music on Gramophone Records. **5.5,** Agricultural Talk. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission: A Musical Play (Hans Krasa). **6.0,** Chimes. **6.1,** News Bulletin. **6.25,** See **Moravská-Ostrava. 7.5,** Song Recital by Jarmila Novotná, relayed from the Lucerna Hall. In the interval at **8.0,** Time Signal. **9.0,** Time Signal. **9.1,** News Bulletin. **9.15,** See **Moravská-Ostrava. 10.30** (approx.), Close Down.

RABAT

721.1 kc/s, 416 metres; 6 kW.—**12.30 to 2.0,** Concert conducted by Louis Roche: Carnaval (Guiraud); Kitten on the Keys (Confrey); First Movement from the Pastoral Symphony (Beethoven); Song; News and Weather; Violin Solo, Doux propos (Féyrier); Selection from Samson and Delilah (Saint-Saëns); Nocturne for 'Cello (Pierné); Selection from Les Saltimbanques (Ganne); Song; Minuet (Boccherini); Overture to an Operetta (Roche). **3.30,** Educational Programme. **4.0,** Variety Music on Gramophone Records. **5.0 to 7.0,** Interval. **7.0,** Arab Programme—Concert. **7.45,** Le Journal Parlé, Weather, and News. **8.0,** Concert of Light Music: Selection from Lischen et Fritzchen (Offenbach-Tavan); Song from Véronique (Messager); Selection from Un bon garçon (Vvain-Salabert); Tendre fleur du riant printemps from Les Saltimbanques (Ganne); Selection from Gri-gri (Lincke); Ce n'est pas la peine from Ciboulette (Hahn); Selection from White Horse Inn (Benatzky). **9.0,** Variety Music on Gramophone Records.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **LAUSANNE, 442 kc/s, 680 metres;** and **GENEVA, 395 kc/s, 760 metres.**—**5.0 p.m.** (from **Geneva**), Scientific Talk. **5.30** (from **Geneva**), Book Review. **6.0** (from **Geneva**), Weather Forecast, News Bulletin and Announcements. **6.30** (from **Geneva**), Talk on Films. **7.0,** Concert by the Organum Accordion Club, with Yodel Solos, relayed from **La Chaux-de-Fonde;** Marche des Armourins (Lauber); Hungarian Dances, Nos. 5 and 6 (Brahms); Yodel Solo, Choral and Träumerei (Schumann); Yodel Potpourri of Russian Melodies (Wilke); Yodel Solos. **8.0,** Concert of Light Music by the Station Orchestra, conducted by R. Echenard. **9.0,** News Bulletin and Weather Forecast. **9.10** (from **Geneva**), Dance Music. **10.30** (approx.), Close Down.

REYKJAVIK

250 kc/s., 1,200 metres; 21 kW. **8.30 p.m.,** Weather Report. **8.40,** Musical Programme and Announcements. **9.0,** Chimes. **9.2,** News Bulletin. **9.30,** Reading. **10.0,** Concert by the Station Quartet, followed by Choral Music on Gramophone Records. After the Concert, Dance Music. **1.0 a.m. (Sunday),** Close Down.

RIGA

572 kc/s, 525 metres; 15 kW. **6.15 p.m.,** Concert by the Estonia Musika Osakond Choir conducted by Juhan Aavik relayed from the Conservatoire. **7.5,** News. **7.25,** April Fools' Day Jokes. **8.0,** Weather and News, followed by Dance Music. **10.0** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

(1 RO), 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—**12 Noon,** Time and Announcements. **12.2 to 1.15 p.m.,** Orchestral Concert. In the interval from **12.30 to 12.45,** Giornale Radio and Exchange. **3.30,** Programme for Children. **3.45,** Report of the Royal Geographical Society and Giornale Radio. **4.0,** Exchange and Announcements. **4.15,** Reading. **4.30 to 5.15,** Organ Recital by Franco Michele Napolitano, relayed from the Conservatoire of San Pietro a Maiella, **Naples:** Prelude and Fugue in D (Mendelssohn); Three Choral Preludes (Bach); Passacaglia (Bach); Prelude, Fugue and Variations (Franck); Choral in E (Franck); Fantasia on a Choral (Barthauss); Finale from the Second Symphony (Vierne). **6.0 (Naples),** Shipping and Sports Notes. **6.10,** Lesson in Morse. **6.20,** Giornale Radio, Agricultural and Dopolavoro Notes. **7.0,** Time, Announcements and Light Music on Gramophone Records. **7.30,** Sports Notes and Tourist Report. **7.45,** Relay from a Theatre. In the intervals: Review of Books, Literary Notes and News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** and by **W2XAD** (See Short-Wave List).—**12 Midnight,** El Tango Romantico, from **New York. 12.15 a.m. (Sunday),** Stock Reports. **12.20,** Lady Fingers (Pianists). **12.45 till Close Down,** **New York** Relay. **12.45,** The World To-day, by James G. MacDonald. **1.0,** Viennese Programme. **1.30,** The Economic World To-day. **2.0,** Blue Danube. **2.30,** George Olsen's Orchestra. **3.0,** B. A. Rolfe and his Orchestra.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres.**—**9.30 to 10.45 a.m.,** See **Vatican City. 11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40** (from **Berne**), Light Music on Gramophone Records. **12.35 p.m.,** Weather and Exchange. **12.45** (from **Basle**), Wireless Notes. **1.0** (from **Basle**), Book Review. **1.30** (from **Basle**), Negro Spirituals on Gramophone Records. **2.0** (from **Basle**), Talk: The Legal Investigation of Street Accidents. **2.30** (from **Basle**), Chess Lesson. **3.0** (from **Basle**), Swiss Songs on Gramophone Records. **3.30** (from **Basle**), A Children's Visit to the Basle Station. **4.0** (from **Basle**), Folk Songs and Music on Gramophone Records. **4.30,** Weather Report. **4.32 to 5.30,** No Transmission. **5.30** (from **Basle**), Talk: Passenger Traffic on the Rhine between Cologne and Basle. **6.0,** Chimes from the Zurich Churches, followed by Time, Weather and Market Prices. **6.15** (from **Basle**), Reading from Egmont (Goethe). **6.45** (from **Basle**), Potpourri of Student Songs, followed by Old Heidelberg—Play (Meyer-Förster). **8.40,** Weather and News. **8.50** (from **Basle**), Dance Music on Gramophone Records. **10.0** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

RADIOTJANST (SASA), 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Horby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**4.0 p.m.,** Weather Report. **4.5,** Programme for Children. **4.30,** Popular Music on Gramophone Records. **5.30,** Variety Programme. **5.55,** Song Recital by Signe Hammarström. **6.15,** Weather and News. **6.30,** Variety Programme. **7.30,** Talk. **8.0,** Old Dance Music. **8.45,** Weather and News. **9.0,** Modern Dance Music. **10.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**10.30 a.m.,** Haydn Anniversary Concert (Born April 1st, 1732); Conductor, Maurice de Villers: Quartet in B Minor for Strings; Overture, L'Isola disabitata; Ochsenmenuett; Prelude and Air from The Seasons; Symphony No. 13; Air from The Seasons; Finale from the Symphony, La reine. **11.45,** News. **12 Noon,** Time and Exchange. **12.5 p.m.,** Gramophone Concert of Variety Music. **1.0,** Dance Music on Gramophone Records. **2.0 to 2.45,** Interval. **2.45,** Talk in French on Mendelssohn. **3.0,** Gramophone Concert: Norwegian Dances (Grieg); Ballet égyptien (Luigini); Ballet Music from Sylvia (Delibes). **3.45,** Legal Talk in French. **4.0,** Pasdeloup Symphony Concert, relayed from the Théâtre des Champs-Elysées, Paris. **6.0,** French Lesson. **6.15,** Gardening Talk in French. **6.30,** Time and News. **6.45,** Gramophone Concert of Variety Music. **7.20,** Lottery Results. **7.30,** Concert by the Union Municipal Band, relayed from **Barr;** Soloist, M. Roskam ('Cello): Overture, Il Seraglio (Mozart); Selection from The Girl in the Taxi (Gilbert); Serenade and Tarantella for 'Cello (Squire); Ballet Music from Coppélia (Delibes); Four Pieces from Au temps passé (Fernand); Hungarian Rhapsody for 'Cello (Popper); Overture, The Caliph of Bagdad (Boieldieu); Marche aux Flambeaux (Meyerbeer). **9.0,** Concert relayed from the Café Moll, Mulhouse; Conductor, M. G. Jacquet; Soloists, G. Jacquet (Violin) and G. Cabrol (Pianoforte): Overture, Le roi d'Ys (Lalo); Waltz, Barcarolle (Waldteufel); Rhapsody for Violin and Pianoforte, Tzigane (Ravel); Selection from The Tales of Hoffmann (Offenbach); Serenade, Il Bacio (de Michaeli); Intermezzo, En revant (Fassione); Sevillana (Fassione). **10.0, Quintet** Concert, relayed from **Radio Coloniale (Paris) (11,705 kc/s, 25.63 metres). 11.0 p.m.** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by **Freiburg, 527 kc/s, 570 metres.**—**12.30 p.m.** (from **Freiburg**), Orchestral Concert, conducted by Pfaff. **1.30,** Time, News, Weather, and Programme Announcements. **1.45** (from **Karlsruhe**), Four German Poems (Maria Kahle). **2.0,** Talk on Flowers. **2.30,** Programme for Children. **3.30** (from **Mannheim**), Concert by the Mannheim Philharmonic Orchestra, conducted by Hans Leger: Huldigungsmarsch (Wagner); Prelude to Hansel and Gretel (Humperdinck); Waltz, Wiener Zugvögel (Translateur); Overture, Peter Schmoll (Weber); Ballet Music from Les petits riens (Mozart); Rendez-vous ici Lehar (Hruby); Overture, Banditenstreiche (Suppé). **5.0,** Time and Sports Notes. **5.25,** Talk on Alpine Scenery. **5.50,** Talk in connection with Navy Day and the Commissioning of the Deutschland: The Development of the Battle Ship. **6.15,** Time, News, Weather and Snow Report. **6.30,** A Picture Book without Pictures—A Literary and Musical Sequence (H. C. Andersen). **7.15,** Gipsy Love Operetta in Three Acts (Lehar). **9.0,** Time, News, Weather, Snow Report and Programme Announcements. **9.25,** Franz Völker sings on Gramophone Records. **9.45,** See **Munich. 11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**5.15 p.m.,** Military Music. **5.30,** Hommage à Schubert (Guillemoteau), by the Symphony Orchestra. **5.45,** Extracts from Sound Films. **6.0,** Light Music. **6.15,** Racing Results, Market Prices, and News. **6.25,** Local News. **6.30,** Music by an Argentine Orchestra. **6.45,** Light Music. **7.0,** Concert by a Viennese Orchestra: Beaux yeux (Illiesen); Selection from Cocorico (Ganne); Waltz from The Bird Fancier (Zeller); L'étoile polaire (Waldteufel); Waltz (Strauss); Brise argentine (Daequin). **7.30,** Opera Music. **7.45,** Military Music. **8.0,** Extracts from La fille de Madame Angot—Opera in Three Acts (Lecocq). **8.40,** Orchestral Music, Le rouet d'Omphale (Saint-Saëns); Overture, Poet and Peasant (Suppé); Berceuse from The Fire Bird (Stravinsky). **9.0,** Instrumental Music. **9.15,** North African News. **9.30,** Concert for Listeners in Morocco. **10.0,** Request Concert. **10.30 to 11.0,** Programme in English, by the I.B.C.: W. Brown-Constable announcing. Pianoforte Solos: Memories of Maurice Chevalier. **10.30,** A Little Love Nest for Two; The Trumpeter; Paradise; Tuneful Melodies; Miss Hooligan's Christmas Cake; She was only Somebody's Daughter; Widdicombe Fair. **10.58** I.B.C. Good-night Melody. **11.0,** Weather and Announcements. **11.5,** Balalkaika Music and Russian Songs. **11.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**4.10 to 6.35 p.m.,** See **Turin. 6.35,** Pianoforte Recital of Music by Pick-Mangiagalli, with Commentary. Filigrana; Sarabanda ieratica Impetuoso. **7.0** (approx.), till Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**4.10 to 5.0 p.m.,** Orchestral Concert, conducted by Ugo Tansini. **5.35,** Giornale Radio, Agricultural and Dopolavoro Notes. **6.5,** Giornale Radio.

APRIL 1st SATURDAY *continued*

6.30, Time, Announcements and Tourist Report. **6.35,** Gramophone Records of Popular Music. **7.0,** Giornale Radio, Weather and Gramophone Records (contd.). **7.30,** Talk: Events and Problems. **7.45,** Rompelsallo—Operetta in Three Acts (Pietri). **9.0** In the intervals, Review of Books and Notes on Art. After the Operetta, Giornale Radio and Dance Music from **Florence. 10.30** (approx.), Close Down.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,969 kc/s, 50.26 metres (Evening); 10 kW.**—**9.30 to 10.45 a.m.,** Relay from St. Peter's, Rome, of the Opening of the Holy Door. Procession to the Singing of the Hymn "Veni Creator" by the Choir of the Sixtine Chapel, finishing at the Atrium of the Basilica. The Holy Father goes from the Throne to the Holy Door and knocks Three Times. At the First Knock he says Aperite mihi portas justitiae, and the Choir sings Ingressusu in eas confitebor Domino. At the Second Knock: Introibo in domum tuam Domine, and the Choir: Adorabo ad templum sanctum tuum in timore tuo. At the Third Knock: Aperite mihi portas quoniam nobiscum Deus, and the Choir: Qui fecit virtutem in Israel. Opening the Holy Door and Purification of the Threshold. The Chimes of St. Peter's. The Holy Father sings Actiones nostras quaesumus. The Choir: Jubilate Deo omnis terra. The Holy Father sings: Deus qui per Moysem. Singing of the Hymn: Pange lingua gloriosi lauream certaminis. The Holy Father enters into the Basilica. Singing of the Motet Ave verum Corpus natum. Showing of the Major Relics of Our Saviour's Passion. The Holy Father imparts the Apostolic Benediction. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg 1,373 kc/s, 218.5 metres.**—**3.5 p.m.,** Mandoline Concert. Overture, La Madame blanche (Boieldieu); Cavatina (Raff); Schön Rosmarin (Kreisler); Gavotte from Mignon (Thomas); Tango, Meine Königin (Roderich Bass); Spanish Waltz (Hellmesberger); Japanese Lantern Dance (Yoshitomo). **3.40,** Talk: The Comic Paper. **4.5,** Radio Report from the Danube River Port in Vienna. **5.5,** Orchestral Concert. March, Kreuz und Quer (Josef Latzletzberger); Waltz, Wiener Bonbons (Joh. Strauss); Overture, Orpheus in the Underworld (Offenbach); Potpourri, Wiener Leben (Ziehrer); English Waltz, In einem kleinen Café in Hernals (Herman Leopoldi); Potpourri, Perlen vom Donaustrand (Martin Uhl). **6.5,** Sayings and Proverbs. **6.10,** April Jokes. **6.25,** Time, Weather, Sports Notes, and Programme Announcements. **6.35,** Choral Concert. Deutsches Freiheitslied (Eduard Göttl); Mit gedämpfter Stimme (Karl Führich); Violin Solo, Erdenfahrt (Joseph Reiter); Baritone Solo, Rosenlied (Carl Lafite); Lenz (Max Egger). **7.0,** Hary Janos Opera (Kodaly), by the Vienna Symphony Orchestra, the Vienna Opera House Chorus and the Vienna Boys Choir. News in an interval. **9.45,** Announcements. **9.50,** Gramophone of Light Music.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW. **10.55 a.m.,** Time Signal and Fanfare from the Tower of St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Light Music on Gramophone Records. **12.10 p.m.,** Weather Forecast. **12.15,** Educational Programme from **Lwow (788 kc/s., 381 metres). 12.55 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.25,** Military Report. **2.35,** Programme for Young People. **3.0,** Light Music on Gramophone Records. **3.40,** Religious Talk, relayed from **Lwow. 4.0,** Divine Service, relayed from the Ostro Brama, Wilno. **5.0,** Programme Announcements. **5.5,** Light Music. In the interval, News. **6.0 to 6.20,** Gardening Notes. **6.30,** Topical Talk. **6.45,** Radio Journal. **7.0,** Concert by the Station Orchestra, conducted by S. Nawrot: Soloists, M. Fogg (Songs) and E. Dubrovin (Balalaika); March, The Washington Post (Sousa); Suite (Friml); Songs; Balalaika Solos: (a) Melody (Andrejev), (b) Potpourri (Dubrowin), (c) Coniawienne (Wieniawsky); Dance No. 2 from Der Dämon (Rubinstein); Sur les bords du ruisseau (Boisedfres); American Intermezzo (Rektenwald); Songs; Dance Suite (Mrazek); Melody (Svensson); Balalaika Solos: (a) Serenade (Gabriel-Marie), (b) Potpourri of Russian Songs (Dubrowin); Polka (Dubrowin); Waltz, L'étoile polaise (Waldteufel); Overture to a Revue (Lincke). **10.** In the interval, Sports Notes and Radio Journal. **9.5,** Chopin Recital. **9.40,** Talk: The Revolution of the Sound Film. **9.55,** Weather and Police Announcements. **10.0,** Dance Music. In the interval at **10.30,** News for Members of the Polish Polar Exhibition.

ZURICH.—See **Schweizerischer Landessender.**

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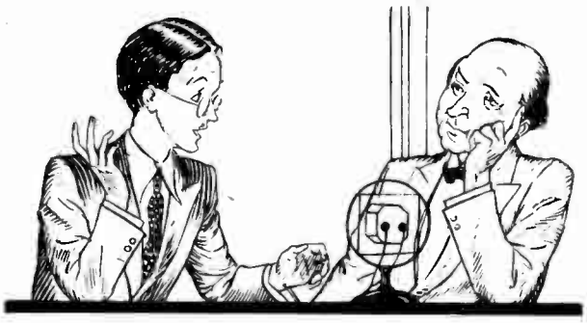

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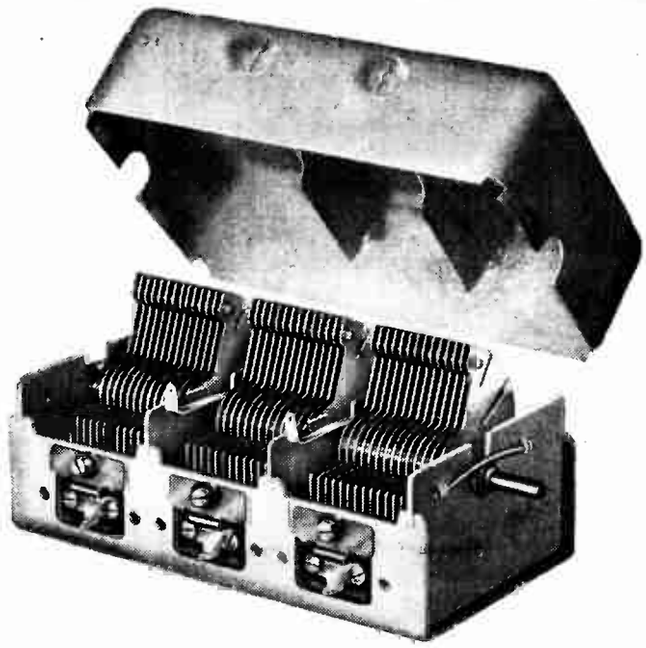

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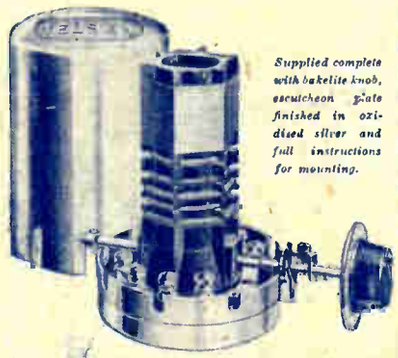

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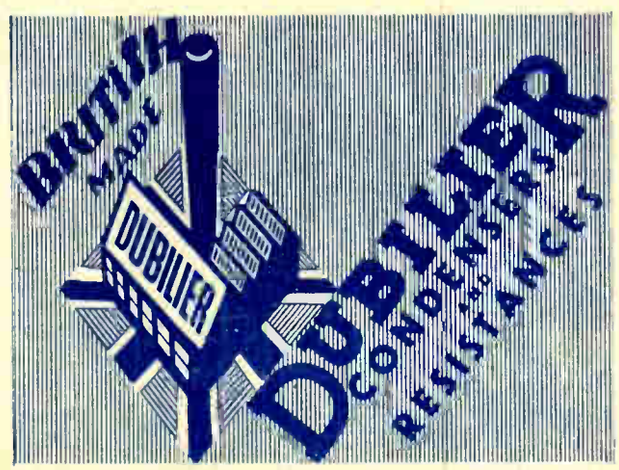

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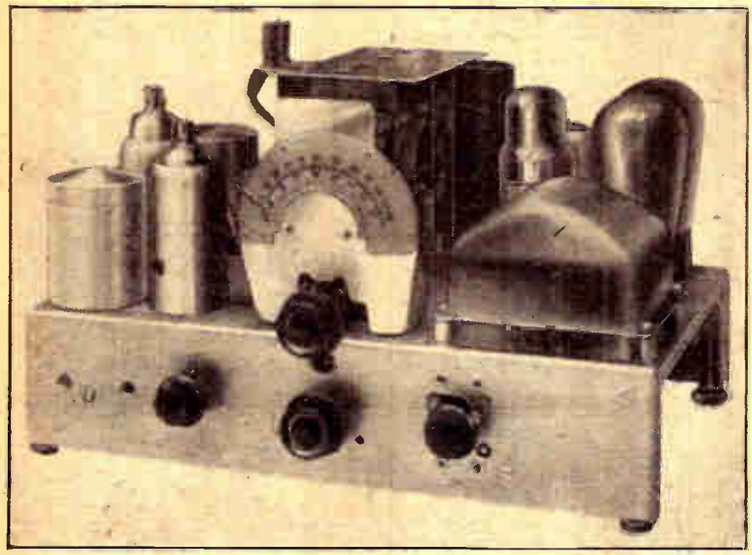

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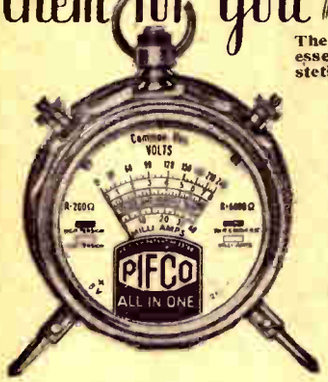

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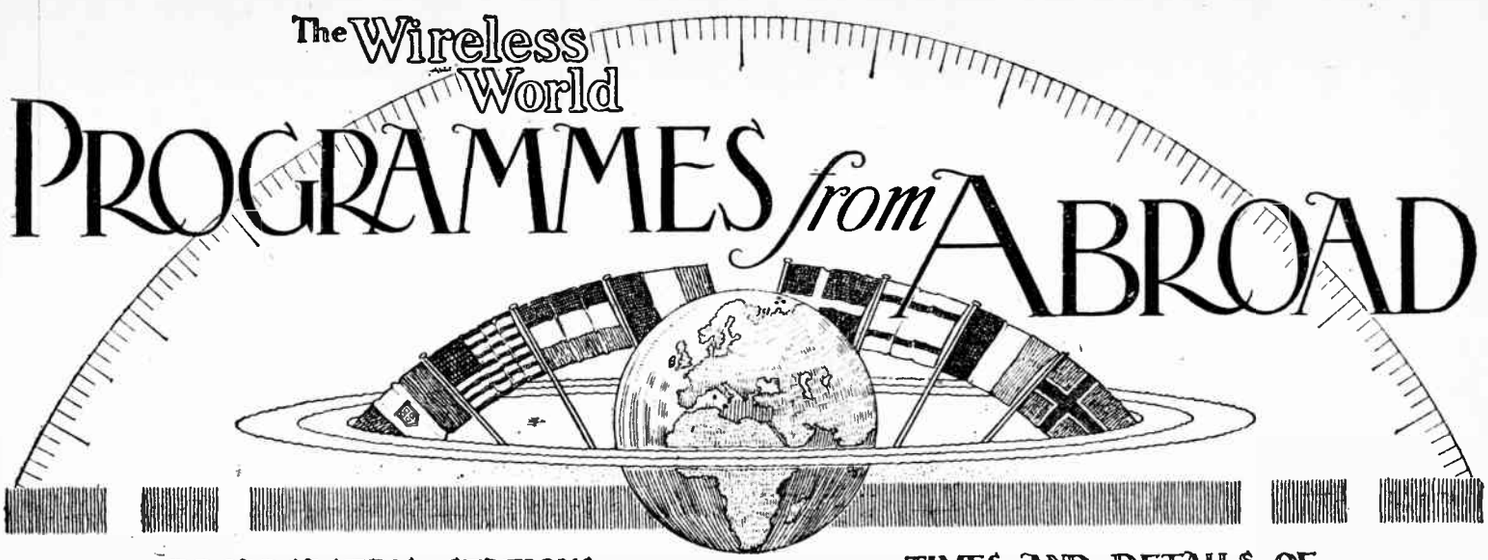
PROGRAMMES *from* ABROAD



BROADCASTING STATIONS ARRANGED IN ORDER OF WAVELENGTH

TIMES AND DETAILS OF FULL WEEK'S FOREIGN TRANSMISSIONS.

Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)	
1875	160	8.5	Huizen (Holland)	
1796	167	40	Lahti (Finland)	
1725	174	75	Radio Paris, C.F.R.	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (*S.-W. Stn. DJA on* 31.38 *m.*)	
1554.4	193	30	Daventry National	
1538	195	7	Ankara (Angora) (Turkey)	
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)	
1446	207.5	13	Eiffel Tower, FL, Paris	
1412	212.5	120	Warsaw 1 (Poland)	
1380	217.5	100	Novosibirsk, RV6 (Russia)	
1354.4	221.5	30	Motala (Sweden). (*Relays Stockholm*)	
1304	230	100	Moscow, WZSPS (Trade Unibn) (Russia)	
1275	235	0.5	Tunis-Kasbah (Tunisia)	
1230	244	0.6	Boden (Sweden). (*Relays Stockholm*)	
1200	250	5	Stamboul (Turkey)	
1200	250	21	Reykjavik (Iceland)	
1190	252	200	Luxembourg (*Testing*)	
1170	256	25	Tashkent, RV11 (Russia)	
1154	260	7.5	Kalundborg (Denmark). (*Relays Copenhagen*)	
1117	268.5	40	Moscow, Popoff RV58 (Russia)	
1083	277	60	Oslo (Norway)	
1071	280	35	Tiflis, RV7 (Russia)	
1035	290	36	Kiev, RV9 (Russia)	
1000	300	100	Moscow (Russia) (*S.-W. Stn. on* 50 *m.*)	
938	320	20	Kharkov, RV4 (Russia)	
857	350	100	Leningrad (Russia)	
840	357	18.5	Budapest (Hungary)	
825	363.6	50	Sverdlovsk, RV5 (Russia)	
770	389	0.6	Ostersund (Sweden). (*Relays Stockholm*)	
760	395	1.3	Geneva (Switzerland). (*Relays Sottens*)	
720	416.6	20	Moscow, RV2 (Experimental) (Russia)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)	
680	441.2	0.6	Lausanne (Switzerland). (*Relays Sottens*)	
574.7	522	0.7	Hamar (Norway). (*Relays Oslo*)	
574.7	522	7	Ljubljana (Yugoslavia)	
569	527	0.25	Freiburg-im-Breisgau (Germany). (*Relay Stn.*)	
568.1	528	2	Grenoble (France)	
566	530	0.25	Hanover (Germany). (*Relays Hamburg*)	
563	533	16	Wilno (Poland). (*Relay Station*)	
560	536	0.25	Augsburg (Germany). (*Relays Munich*)	
560	536	1.5	Kaiserslauten (Germany). (*Relays Munich*)	
558.6	537	1	Tampere (Finland). (*Relays Helsinki*)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	
542	554	10	Sundsvall (Sweden). (*Relays Stockholm*)	
537.6	558	3	Palermo (Italy)	
533	563	60	Munich (Germany)	
525	571	15	Riga (Latvia)	
517	580	15	Vienna (Rosenhügen) (Austria)	
509	589	15	Brussels No. 1, Velthem (Belgium). (*In French*)	
500.8	599	20	Florence, 1FI (Italy). (*Relays Turin*)	
495.8	605	1.2	Trondheim (Norway)	
488.6	614	120	Prague, No. 1 (Czechoslovakia)	
480	625	50	North Regional (Manchester)	
472.4	635	60	Langenberg (Germany)	
465.8	644	1.5	Lyons la Doua, PTT (France)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	
453.2	662		San Sebastian, EAJ8 (0.6 kW.): Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (*relays Heilsberg*); Klagenfurt (0.5 kW.) (Austria) (*relays Vienna*); Porsgrund (0.7 kW.) (*relays Oslo*), Tromsö (0.1 kW.) Bodö (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (*relays Stockholm*).	
453.2	662	0.25	Agen (France)	
450.3	666	20	Madona (Latvia)	
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.): Rjukan (0.15 kW.), Notodden (0.08 kW.) (Norway) (*relays Oslo*).	
441.2	680	50	Rome, IRO. (*S.-W. Station*, 2 *RO on* 25.4 *m.*)	
435.4	689	55	Stockholm, SASA (Sweden)	
430.4	697	2.5	Belgrade (Yugoslavia)	
424.3	707	2	Madrid, EAJ7 (Union Radio). (*After* 7.0 *p.m.*)	
424.3	707	100	Moscow, Imini Stalina (Russia)	
419.5	715	1.5	Berlin, No. 1, Witzleben (Germany)	
416.4	720.5	5	Rabat (Morocco)	
413	725	60	Athlone (Irish Free State)	
408.7	734	16	Katowitz (Poland)	
403.8	743	25	Sottens (Radio Suisse Romande) (*Switzerland*)	
398.9	752	25	Midland Regional	
394.2	761	12	Bucharest (Roumania)	
389.6	770	120	Leipzig (Germany)	
385.1	779	8	Toulouse (Radiophonie du Midi) (France)	
385.1	779	10	Stalino, RV26 (Russia)	
381	788	16	Lwow (Lemburg) (Poland)	
376.4	797	50	Scottish Regional (Falkirk)	
372.2	806	1.5	Hamburg (Germany)	
370.1	810.5	0.8	Radio, LL, Paris	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (*relays Lahti*); Kharkov, RV20 (10 kW.) (Russia).	
365.8	821	0.7	Fredriksstad (Norway). (*Relays Oslo*)	
364.1	824	1	Bergen (Norway)	
363.6	825	13	Algiers (Algeria)	
360.6	832	60	Mühlacker (Stuttgart) (Germany)	
355.9	843	50	London Regional (Brookmans Park)	
352.1	852	7	Graz (Austria). (*Relays Vienna*)	
348.8	860	7.6	Barcelona, EAJ1 (Spain)	
348.8	860	10	Leningrad, RV70 (Russia)	
345.2	869	11.5	Strasbourg, PTT (France)	
341.7	878	35	Brno (Brunn) (Czechoslovakia)	
338.2	887	15	Brussels II, Velthem (Belgium). (*In Flemish*)	
335	896	5	Cadiz (Spain)	
334.4	897	1.9	Poznan (Poland)	
331.5	905	50	Milan (Italy). (*Relays Turin*)	
328.2	914	60	Poste Parisien (France)	
325	923	60	Breslau (Germany)	
321.9	932	10	Göteborg (Sweden). (*Relays Stockholm*)	
318.8	941	0.25	Dresden (Germany). (*Relays Leipzig*)	
318.8	941	1.5	Naples, INA (Italy). (*Relays Rome*)	
315.8	950	1.6	Marseilles, PTT (France)	
312.8	959	1.7	Cracow (Poland)	
312.8	959	10	Genoa, IGE (Italy). (*Relays Turin*)	
309.9	968	1	Cardiff	
307	977	0.7	Radio Vitus (Paris). (*S.-W. Stn. on* 43.75 *m.*)	
307	977	0.75	Zagreb (Yugoslavia)	
304	986	13	Bordeaux Lafayette, PTT (France)	
301.5	995	50	North National (Manchester)	
298.8	1004	11	Tallinn (Esthonia)	
296.1	1013	20	Hilversum (Holland). (7 *kW. before* 4.40 *p.m.*) (*Exchanges wavelengths with Hilversum every three months.*)	
293.5	1022	0.7	Limoges, PTT (France)	
293.5	1022	2.6	Kosice (Czechoslovakia)	
291	1031	10	Viipuri (Viborg) (Finland). (*Relays Helsinki*)	
288.3	1040	50	Scottish National (Falkirk)	
288.3	1040	1	Bournemouth (*Relay Station*)	
286	1049	0.8	Montpellier (France)	

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Metres.	Kc.	kW.	Station.	Tuning Positions.
285.1	1052	0.7	Lyons (Radio-Lyon) (France)	
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
283.6	1058	0.5	Innsbruck (Austria). (*Relays Vienna*)	
282.2	1063	2	Lisbon CT 1AA (Portugal). (*Short-wave Station on 31.25 m.*)	
281.2	1067	0.75	Copenhagen (Denmark)	
278.8	1076	13.5	Bratislava (Czechoslovakia)	
276.5	1085	60	Heilsberg (Germany)	
273.7	1096	7	Turin (Italy)	
271.5	1105	1.3	Rennes, PTT (France)	
269.8	1112	20	Bari (Italy)	
269.8	1112	0.25	Bremen (Germany). (*Relays Hamburg*)	
267.6	1121	1.5	Valencia (Spain)	
265.8	1128.5	1.3	Lille, PTT (France)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
261.5	1147	50	London National (Brookmans Park)	
259.3	1157	17	Frankfurt-a.M. (Germany)	
259.3	1157	2.3	Trier (Germany). (*Relays Frankfurt*)	
257.1	1167	10	Hörby (Sweden). (*Relays Stockholm*)	
255.1	1176	0.7	Toulouse, PTT (France)	
253.1	1185	5	Gleiwitz (Germany). (*Relays Breslau*)	
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)	
249.6	1202	0.8	Juan-les-Pins, Nice (France)	
247.7	1211	10	Trieste (Italy)	
245.9	1220	0.12	Swansea	
245.9	1220		Berne (0.5kW.) (Switzerland)(*relays Beromünster*): Eskilstuna (0.2 kW.), Säffle (0.4 kW.) (Sweden) (*relays Stockholm*); Cassel (0.25 kW.) (Germany) (*relays Frankfurt*); Linz (0.5 kW.) (Austria) (*relays Vienna*); Pietarsaari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (*relays Helsinki*): Schaerbeek (0.1 kW.) (Belgium).	
244.1	1229	0.5	Basle (Switzerland). (*Relays Beromünster*)	
242.3	1238	1	Belfast (N. Ireland)	
240.6	1247	0.5	Stavanger (Norway)	
238.9	1256	2	Nürnberg (Germany). (*Relays Munich*)	
238	1260	1	Nimes (France)	
237.2	1265	3	Bordeaux, Sud-Ouest (France)	
235.5	1274	0.5	Kristiansand (Norway)	
235	1283	1.65	Lodz (Poland). (*Relay Station*)	
232.2	1292	0.25	Kiel (Germany). (*Relays Hamburg*)	
230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhätten).	
227.4	1319	0.5	Flensburg (Germany). (*Relays Hamburg*)	
225.9	1328	10	Fécamp, Radio-Normandie (France)	
224.4	1337	1	Cork (Irish Free State)	
222.9	1346	0.15	Hüdiksvall (Sweden)	
219.9	1365	1.5	Béziers (France)	
218.5	1373	0.2	Plymouth	
218.5	1373	0.5	Salzburg (Austria). (*Relays Vienna*)	
217	1382	0.5	Königsburg (East Prussia) (Germany)	
217	1382	0.25	Karlstad (Sweden)	
215.6	1391	0.1	Brussels, Radio-Chatelineau (Belgium)	
215.6	1391	0.2	Halmstad (Sweden)	
214.3	1400	1	Aberdeen	
211.3	1420	1	Newcastle	
209.8	1430	0.8	Magyarovar, Miskolez and Pecs (Hungary)	
207	1450	0.15	Boras (Sweden)	
206	1460	0.2	Ornsköldsvik (Sweden)	
204.1	1470	0.2	Gävle (Sweden)	
202.7	1480	0.25	Kristineham (Sweden)	
201.3	1490	0.25	Hälsingborg (Sweden)	
195	1530	0.2	Karlskrona (Sweden)	

PRINCIPAL SHORT-WAVE STATIONS.

(N.B.—Times of Transmission, given in parentheses, are approximate only and represent G.M.T.)

Metres.	Kc.	Call Sign.	Station.	Tuning Positions.
80.0	3,750	2RO	Rome	
70.2	4,273	RW15	Khabarovsk (Russia). (*Daily* 09.00–12.00)	
63.0	4,760	CT3AR	Funchal (Madeira). (*Wed.* 20.30, *Sun.* 14.30)	
62.56	4,795	VE9BY	London, Ont. (Canada). (*Sun.* 06.00)	
62.5	4,800	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 21.00)	
58.3	5,146	PMY	Bandoeng (Java). (*Daily* 12.20 *and* 07.00)	
58.0	5,172	OK1MPT	Prague (Czechoslovakia). (*Tues. and Fri.* 19.30.)	
54.52	5,502	W2XBH	Brooklyn, N.Y. (U.S.A.). (*Relays WGGU*)	
52.7	5,690	FTU1	Tananarive, P.T.T. (Madagascar)	
52.5	5,714	HCJB	Quito (Ecuador). (*Daily* 12.30)	
51.22	5,857	XDA	Chapultepec (Mexico)	
50.6	5,930	HKO	Medellin (Colombia)	
50.26	5,970	HVJ	Vatican State, Rome. (*Daily* 19.00)	
50.0	6,000	ZL3ZC	Christchurch (New Zealand). (*Wed.* 03.00, *Sat.* 07.30.)	
50.0	6,000	—	Bucharest (Roumania)	
50.0	6,000	RW59	Moscow (*Relays Trades Union Stn.*)	
50.0	6,000	EAR25	Barcelona, Radio Club (Spain). (*Sat.* 20.00)	
49.96	6,005	HRB	Tegucigalpa (Honduras). (*Daily ex. Sun.* 00.00–05.00.)	
49.83	6,020	W9XF	Chicago, Ill. (U.S.A.). (*Relays WENR*)	
49.8	6,023	XEW	Mexico City (Mexico). (*Daily* 01.00)	
49.67	6,042	W2XAL	Coytesville, N.J. (U.S.A.). (*Relays WRNY.*)	
49.6	6,048	W3XAU	Philadelphia, Pa. (U.S.A.). (*Relays WCAU.*)	
49.59	6,050	VE9HX	Halifax (Nova Scotia). (*Relays CHNS*)	
49.58	6,050	GSA	Empire Broadcasting, Zones 1–5	
49.5	6,060	VQ7LO	Nairobi (Kenya Colony). (*Daily* 16.30)	
49.5	6,060	W8XAL	Mason, Ohio (U.S.A.). (*Relays WLW*)	
49.43	6,069	VE9CS	Vancouver, B.C. (Canada)	
49.4	6,072	OXY	Skamleback (Denmark). (*Relays Copenhagen.*)	
49.4	6,072	UOR2	Vienna. (*Tues.* 13.00, *Thurs.* 15.00, *Sat.* 23.00.)	
49.34	6,080	W2XCX	Kearny, N.J. (U.S.A.). (*Relays WOR*)	
49.34	6,080	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
49.22	6,095	VE9GW	Bowmanville, Ont. (Canada). (*Daily* 20.00)	
49.2	6,098	ZTJ	Johannesburg (S. Africa). (*Weekdays* 09.00, 14.00 [*Sat.* 14.30] *and* 17.00, *Sun.* 13.00 *and* 17.30.)	
49.18	6,100	W3XAL	Bound Brook, N.Y. (*Relays WJZ*)	
49.1	6,110	VUC	Calcutta, India. (*Daily* 13.00)	
49.02	6,120	W2XE	Long Island, N.Y. (U.S.A.). (*Relays WABC.*)	
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
48.8	6,147	VE9CL	Winnipeg (Canada). (*Daily ex. Sun.* 00.30)	
48.65	6,167	XIF	Mexico City (Mexico)	
48.35	6,205	HKC	Bogota (Colombia). (*Daily* 15.00)	
48.2	6,220	2RO	Rome (Italy)	
48.05	6,243	HKD	Barranquilla (Colombia). (*Weekdays* 23.45)	
48.0	6,250	CN8MC	Casablanca (Morocco). (*Relays Rabat*)	
47.0	6,382	HC1DR	Quito, Ecuador. (*Daily* 01.00)	
46.69	6,425	W3XL	Bound Brook, N.J. (U.S.A.). (*Relays WJZ irregular.*)	
46.67	6,426	VE9BY	London, Ont. (Canada). (*Sat.* 01.00 *Sun.* 02.00.)	
45.38	6,611	REN	Moscow (*Relays Trade Union Stn.*)	
45.0	6,667	FM8KR	Constantine (Algeria). (*Mon. and Fri.* 23.00.)	
45.0	6,667	TGW	Guatemala City (Central America). (*Daily* 03.00.)	
43.75	6,860	—	Radio Vitus, Paris. (*Daily* 20.30)	
43.0	6,970	EAR110	Madrid. (*Tues. and Sat.* 22.30)	
41.7	7,195	VS1AB	Singapore (Malay States). (*Sun. and Wed.* 15.30.)	
41.6	7,211	EAR58	Teneriffe (Radio Club) (Canary Islands)	
41.5	7,230	HB9D	Zurich (Radio Club) (Switzerland). (*1st and 3rd Sun.*)	
41.0	7,320	HSP2	Bangkok (Siam). (*Mon.* 14.00)	
40.3	7,443	HBQ	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.45).	
39.7	7,556	HKF	Bogota (Colombia). (*Westinghouse Labs.*)	
39.4	7,612	X26A	Nuevo Laredo (Mexico). (*Thurs.* 16.00)	
38.7	7,797	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.45.)	
36.92	8,125	PLW	Bandoeng (Java). (*Daily* 10.00–14.00)	
34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 23.00)	
34.68	8,650	VE9BY	London, Ont. (Canada). (*Mon.* 21.00)	
33.50	8,928	TGX	Guatemala City (S. America)	
32.26	9,300	—	Rabat (Morocco). (*Sun.* 21.00)	
31.58	9,500	PRBA	Rio de Janeiro (Brazil). (*Daily* 21.30)	
31.55	9 510	VK3ME	Melbourne (Australia). (*Wed. and Sat.* 10.00.)	
31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5	
31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.) (*Relays WGY*)	
31.38	9,560	DJA	Zeesen (Germany). (*Daily* 13.00)	
31.35	9,570	SRI	Posen (Poland). (*Tues. and Thurs.* 17.30)	
31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.). (*Relays WBZ.*)	
31.3	9,582	W3XAU	Philadelphia, Pa. (U.S.A.). (*Daily ex. Thurs. and Fri.* 21.00.)	
31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.45.)	
31.29	9,585	GSC	Empire Broadcasting, Zone 3	
31.28	9,590	VK2ME	Sydney (Australia). (*Sun.* 10.00)	
31.25	9,598	CT1AA	Lisbon (Portugal). (*Tues. and Fri.* 22.00–24.00.)	
31.10	9,640	HS2PJ	Bangkok (Siam). (*Mon.* 02.00–05.00)	
30.43	9,869	EAQ	Aranjuez (Spain). (*Daily* 23.30, *Sat.* 18.00)	
30.0	10,000	—	Belgrade (Yugoslavia). (*Mon.* 19.00)	
29.3	10,238	T14NRH	Heredia (Costa Rica). (*Daily* 22.00 *and* 02.00.)	
28.98	10,350	LSX	Buenos Aires (Argentina). (*Daily* 20.30)	
26.83	11,180	CT3AQ	Funchal (Madeira). (*Tues. and Thurs.* 10.30–12.30.)	
25.63	11,700	FYA	Pontoise (France). (*Colonial Stn. E-W, daily* 20.00.)	
25.6	11,720	VE9JR	Winnipeg (Canada). (*Daily ex. Sat. and Sun.* 17.45.)	
25.53	11,750	GSD	Empire Broadcasting, Zones 1 & 4	
25.5	11,760	XDA	Chapultepec (Mexico). (*Daily* 20.00)	
25.4	11,810	VE9GW	Bowmanville (Canada). (*Daily* 18.00)	
25.4	11,810	2RO	Prato Smeraldo, Rome. (16.00 *and* 19.30)	
25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
25.28	11,865	GSE	Empire Broadcasting, Zone 2	
25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
25.2	11,905	FYA	Pontoise (France). (*Colonial Stn. N-S*)	
23.38	12,830	—	Rabat (Morocco). (*Sun.* 11.30)	
20.5	14,630	XDA	Chapultepec (Mexico). (*Daily* 19.30)	
19.9	15,075	T14NRH	Heredia (Costa Rica). (*Sat., Sun., Mon.* 16.00 *and* 21.00.)	
19.84	15,120	HVJ	Vatican State, Rome. (*Daily* 10.00)	
19.81	15,140	GSF	Empire Broadcasting, Zone 5	
19.73	15,200	DJB	Zeesen (Germany). (*Daily* 13.00–17.00)	
19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.) (*Relays KDKA.*)	
19.68	15,244	FYA	Pontoise (France). (*Colonial Stn. E-W*)	
19.56	15,340	W2XAD	South Schenectady, N.Y. (U.S.A.) (*Daily* 18.00.)	
16.9	17,750	HSP	Bangkok (Siam). (*Sun. and Tues.* 21.00)	
16.88	17,770	GSG	Empire Broadcasting, Zone 2	
16.87	17,780	W3XAL	Bound Brook, N.J. (*Weekdays* 13.00)	
16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
14.47	20,730	LSY	Buenos Aires (Argentina). (*Sun.* 21.00)	
13.97	21,470	GSH	Empire Broadcasting, Zone 3 (*Daylight working.*)	
13.92	21,540	W8XK	East Pittsburg (*Relays KDKA.*)	

FOREIGN SUNDAY PROGRAMMES

APRIL THE SECOND

PRINCIPAL EVENTS OF THE DAY:

AT HOME	
NATIONAL	Bach's St. Matthew Passion, Part 2, from the Queen's Hall.
LONDON REGIONAL	Service from Royal Masonic School, Bushey.
MIDLAND REGIONAL	Orchestral concert.
NORTH REGIONAL	Organ and pianoforte recital.
WEST REGIONAL	Service from Jesmond Presbyterian Church.
SCOTTISH REGIONAL	Choral programme from Bristol Cathedral.
BELFAST	Service from St. Cuthbert's Church, Edinburgh.
	Service from St. Patrick's Cathedral, Armagh.
ABROAD	
BRUSSELS (No. 1)	2 p.m. Oratorio: "Les Béatitudes," by César Franck, relayed from Liège.
BRUSSELS (No. 2)	9.30 a.m. Wagner concert from Antwerp.
COPENHAGEN	11 a.m. Concert conducted by Fritz Mahler.
HILVERSUM	2.10 p.m. Concert from Amsterdam, conducted by Dr. W. Mengelberg. 7.55 p.m. Marek Weber's Orchestra.
LYON-LA-DOUA	3.45 p.m. Oratorio: "The Messiah" (Handel), from the Salle Rameau.
PRAGUE	8 p.m. Concert conducted by Otakar Jeremias with Stanislav Novak, solo violin.
ROME	4 p.m. Symphony concert from the Augusteo. 7.45 p.m. Operetta: "The Toreador" (Carryl and Monckton).
STRASBOURG	2 p.m. Concert from the Conservatoire, Paris.
TURIN	7.45 p.m. Operetta: "Rompicollo" (Pietri), from the Scala, Milan.
VIENNA	7 p.m. Operetta: "Rip Van Winkle" (Planquette). 8.35 p.m. "Frühling" (F. Lehár).

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 1,337 kc s, 224.4 metres.**—**8.30 p.m.**, Time Signal. **8.31**, Concert by the Station Orchestra. **9.0**, Soprano Solos by Violet Pearson. **9.20**, The Station Orchestra. **9.45**, Traditional Fiddle Music by Frank O'Higgins. **10.0**, Anglo-Irish Songs by M. O'C. Maguire. **10.15**, Pipe Solos. **10.30**, Programme of Ceilidhe Music, relayed from the Mansion House. **11.0**, Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**11.0 a.m.**, Chimes from the Cathedral and Weather Forecast. **11.15**, Municipal Band Concert, conducted by Juan Lamote de Grignon. **1.0 p.m.**, Light Music on Gramophone Records. **1.30** (in an interval), Theatre Notes. **2.0**, Film Review, followed by Concert by the Station Sextet. **3.0**, Programme for Hospitals and other Benevolent Institutions. **4.0 to 5.30**, Interval. **5.30**, Agricultural Talk and Light Music on Gramophone Records. **6.0**, Dance Music relayed from the Ritz Hotel. **7.45**, Orchestral Concert with Songs by Concepcion Callao. **9.0**, An Opera on Gramophone Records. **10.45**, Chess Lesson. **11.0** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**9.45 a.m.**, Agricultural Notes. **10.5**, Sacred Music, relayed from the Church of St. Domenico. **10.30**, Bible Reading. **12 Noon**, Giornale Radio. **12.10 p.m.**, Light Music on Gramophone Records. In the intervals at **12.55**, Weather Report; and at **1.0**, Time Signal and Announcements. **1.15 to 2.0**, Interval. **2.0**, International Football Match, Italy v. Switzerland, relayed from **Geneva.** **7.0**, Sports Notes and Giornale Radio. **7.30**, Time Signal and Announcements. **7.45** (approx.), Variety Concert: Soloists: Anna Moltem (Soprano) and Lino d'Angelo (Baritone). In the interval, Readings. **9.30**, Light Music from the Grande Hotel Moderno. **9.55**, News.

BASLE.—See **Schweizerisher Landessender.**

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**10.30 a.m.**, See **Leipzig. 11.0 to 1.0 p.m.**, See **Hamburg.** In the interval at **11.55**, Nauen Time Signal. **1.0**, Talk for Parents. **1.30**, Programme for Children. **2.0**, Reading. **2.30**, See **Langenberg.** **3.15**, Reading from the Poems of Maria Franziska Forst. **3.30**, Talk on Great Philosopher, Fichte. **4.0**, See **Rome.** **4.35**, Talk on Art: Black and White Illustration. **5.0**, Spitzweg-Bilder, Op. 101 (Hugo Kaun). **5.30**, Talk: Problems of National Education. **6.0**, Calling out the Fire Brigade—an Instructive Sketch (Meta Brix). **7.0**, Hans Franck reads from his own Works. **7.35** (approx.), See **Langenberg.** **9.0**, Weather, News, and Sports Notes. **9.45**, Weather Report for Shipping. **10.0**, Dance Music and Light Music from **Berlin (Witzleben).** **11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**10.30 a.m.**, See **Leipzig. 11.0 to 1.0 p.m.**, Programme from **Hamburg. 1.0**, An Interview with Pupils of the Bismarck College. **1.30**, Talk for Young People: A Trip through Iceland. **2.15**, Talk: Does Illness have any bearing upon Character? **2.30**, Orchestral Concert, conducted by Werner Schmidt-Boelcke. In the interval: Programme of Folk Songs. **5.0**, Talk: The Joys and Sorrows of a Motorist. **5.40**, Report on International Affairs. **6.0**, Pastoral Symphony No. 6 in F, Op. 68 (Beethoven), by the Berlin Wireless Orchestra, conducted by Hans Pfitzner. **6.45**, Sports Notes. **6.55**, Announcement. **7.5**, Concert by a Mandoline Orchestra, conducted by Bruno Henze. **7.30**, Concert by the Berlin Wireless Orchestra, conducted by Bruno Seidler-Winkler: Overture, Preciosa (Weber); Ländliches Tanzidyll, Op. 13 (von Vignau); Symphonic Poem, Orpheus (Liszt); Entry of the Guests into the Wartburg, from Tannhäuser (Wagner); Two Pieces (Wolf-Ferrari): (a) Overture, Susanna's Secret, (b) Intermezzo, from The Jewels of the Madonna; Russian Dances (Bullerian); Ballet Music from Faust (Gounod). **9.0**, Weather, News, and Sports Notes, followed by Gramophone Report on the Final of the Competition for the German Hockey Association's Silver Shield, and Concert of Dance Music and Light Music. **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**2.0 p.m.**, Programme, relayed from **Banska Stiavnica.** **5.0**, Concert by the Station Orchestra, conducted by F. Dyk. **6.0**, Programme, relayed from **Banska Stiavnica.** **7.30**, See **Prague.** **9.20**, Light Music and Dance Music, relayed from the Carlton Hotel. **10.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **GLEIWITZ, 1,184 kc/s, 253 metres.**—**9.0 a.m.**, Catholic Service and Sacred Concert, relayed from the Kreuzkirche. **10.30**, Talk with Readings: The Annunciation of the Virgin Mary in German Literature. **11.0**, See **Hamburg. 1.0 p.m.**, News Bulletin. **1.10**, The Rhymed Unrhymed by Trangott Conrad. **1.25**, Agricultural Talk. **1.40**, Talk: The Breeding of Beavers. **2.0**, Talk: The Sudan as a Tourist Resort. **2.50**, So treiben wir den Winter aus—a Folk Song Play for Children (Heribert Grüger). **3.20**, Talk: Henry the Lion. **3.45**, Concert by the Station Orchestra conducted by Franz Marszalek. **5.30**, Humorous Variety Programme with Walter Sindinger. **6.0**, Weather Forecast and Sports Report. **6.30**, Talk: The Polish Army. **7.0**, See **Hamburg.** In an interval, News Bulletin. **9.0**, Time, Weather, News, Sports Notes and Programme Announcements. **9.30**, Dance Music from **Berlin (Witzleben).** **11.0** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**11.5 a.m.**, Concert by the Station Orchestra, conducted by B. Bakala: Overture in Italian Style (Schubert); First Peer Gynt Suite, Op. 46 (Grieg); Polonaise from Eugene Onegin (Tchaikovsky); Waltz (Kern); Melody (Weis); March, Entry of the Gladiators (Fucik); Selection from The Goldsmith of Toledo (Offenbach); Potpourri (Morena). **12.30 p.m.**, Agricultural Talk. **2.0**, See **Bratislava.** **2.15**, Light Music on Gramophone Records. **4.30**, Concert by a Women's Choir. **5.0 to 5.45**, German Transmission. Concert of Sacred Music. **6.0**, Military Band Concert, conducted by F. Zita. **7.0**, See **Prague. 9.20**, See **Bratislava.** **10.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 503 metres; 15 kW.—**9.0 a.m.**, Concert by the Small Station Orchestra, conducted by P. Leemans. **9.50**, Gramophone Records (Schumann): (a) Impromptu in B, (b) Allegro from the Sonata in G, Op. 78. **10.5**, Concert (contd). **11.0**, Concert of Light Music by the Radio Orchestra, conducted by F. André. **12.0 Noon**, Le Journal Parlé. **12.10 p.m.**, Concert relayed from the Grand Hotel, Antwerp. **12.30**, Le Camelot—Sketch (Blandin). **12.40**, Concert (contd.). **2.0**, Les Béatitudes—Oratorio (Franck), relayed from the Conservatoire, Liège. **4.15**, Dance Music from the St. Sauveur Palais de Danse. In the interval at **4.30** (approx.), Football Results. **5.15**, Gramophone Records of Light Music. **5.30**, Violin Recital of Polonaises: Polonaise in D (Tirindelli); Polonaise brillante in A (Wieniavsky); Ballade and Polonaise (Vieuxtemps). **6.0**, Gramophone Records. **6.15**, Religious Address. **6.30**, Le Journal Parlé. **7.0**, Lehrstück—Cantata (Hindemith), by the Radio Orchestra, conducted by F. André, and Soloists. **7.35**, The Man with the Case—Comedy in One Act (Guillot). **8.0**, Concert by the Radio Orchestra, conducted by M. André: Waltz, Tales from the Vienna Woods (Strauss); Ballet with Chorus, The House Party (Poulenc). **9.0**, Le Journal Parlé. **9.10**, Hot Jazz, with Commentary. **9.40**, Concert by the Max Alexys Orchestra, relayed from the Ancienne Belgique. **11.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish. **9.0 a.m.**, Extracts from the Quartet in E Flat, Op. 127 (Beethoven), on Gramophone Records. **9.30**, Wagner Concert, relayed from the Royal Flemish Theatre, Antwerp. **11.0**, Concert relayed from the Grand Hotel, Antwerp. **12 Noon**, Le Journal Parlé. **12.5 p.m.**, Concert by the Radio Orchestra, conducted by Franz André. **4.0**, Concert by the Symphony Orchestra, conducted by Arthur Meulemans: Overture, Semiramis (Rossini); Selection from La Traviata (Verdi); Nocturne from Cocorico (Gaune); La Sonce (Delibes); Conte pastoral amusant (Godard); Suite from Gretna Green (Guirand); The Butterfly Chase (Kéler-Béla); Waltz, Gold and Silver (Lehár). In the interval at **4.15**, Sports Notes. **5.0**, Organ Recital by Louis Joos, relayed from the Carmelite Church: Prelude to Parsifal (Wagner); Cantabile (Franck); Berceuse (Vierne); Alla brave (Bach). **5.30**, Concert by the Little Orchestra, conducted by Pierre Leemans. **6.15**, Religious Address by the Reverend Father Gestel. **6.30**, Music Review by Paul Gilson. **7.0**, Concert by the Symphony Orchestra, conducted by Arthur Meulemans: Overture, The Mastersingers (Wagner); Concerto for Pianoforte (De Jong); Soloist: The Composer; Fête Polonaise (Chabrier). **7.40**, Sketch (Thiry). **8.0**, Concert (contd.): Scènes napolitaines (Massenet); Flemish Songs; Elegy for Orchestra and Organ (De Roo); Italian Caprice (Tchaikovsky); Flemish Songs; Marche héroïque (Saint-Saëns). **9.0**, Le Journal Parlé. **9.10**, Light Music on Gramophone Records. **10.0**, Concert by the Penguin Club.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**8.0**, Programme for Workers. **8.20**, Religious Programme. **9.15**, Military Band Concert. **10.0**, Light Music on Gramophone Records. **11.0**, Radio Journal. **11.15**, Gramophone Records (contd.). **2.0 p.m.**, Programme for Peasants. **3.0**, Romanian Music and Light Music by the Jean Marco Orchestra. **4.0**, (in an interval), Radio Journal. **5.0**, Talk: **5.20**, Talk on Agriculture and Zoology. **6.0**, Time Signal. **6.2**, Concert by the Station Orchestra: Two Marches from Alceste (Gluck); Second Suite from L'Arlésienne (Bizet); American Suite (MacDowell). **6.30**, Talk. **6.45**, Concert by a Viennese Quartet. **7.15**, Concert by the Station Orchestra (contd.), Selection from Eine Nacht in Venedig (Strauss); Violin Solo, The Canary (Poliakin); Waltz, Appassionato (Ketelbey). **7.45**, Radio Journal.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW.—Also relayed on **840 metres** from **5.0 to 11.0 p.m. 10.15 a.m.**, Protestant Service, followed by Concert of Classical Music by the Opera House Orchestra. **1.0 p.m.**, Variety Music on Gramophone Records. **2.0**, Agricultural Talk. **2.45**, Programme for Schools. **3.15**, Concert, relayed from the Hubay Palace. **4.30**, Talk by Bishop Zadravecz. **5.20**, Song Recital. **6.0**, Sports Notes. **6.15**, The Rose of Stambul—Operetta in Three Acts (Fall). **8.45**, Talk. **9.0**, Reading, followed by Music by the Karl Bura Cigány Band, relayed from the Hotel Metropole.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **KALUNDBORG, 260 kc/s, 1,153 metres; 7.5 kW. 11.0 a.m.**, Town Hall Chimes. **11.2**, Orchestral Concert, conducted by Fritz Mahler, relayed from the Axelborg Studio. **12 Noon**, Talk in English: The Universities of Oxford and Cambridge. **12.20 p.m.**, Talk in German. **12.40**, Talk in French. **1.30**, Gramophone Concert of Popular Music. **1.55**, Programme for Children. **2.25**, Nineteenth Popular Concert from the Axelborg Studio: The Orchestra conducted by Emil Reesen; Soloist: Margherita Flor (Songs). **4.0** (also on **Skamlebaek, 9,520 kc/s; 31.51 metres**), Divine Service from the Christianborg Castle Church. **5.20**, Talk. **5.50**, Weather and News. **6.15**, Time Signal and Sports Notes. **7.0**, Town Hall Chimes. **7.2**, Military Band Concert. **7.25**, Reading (Hans Andersen). **8.5**, Concert (contd.). **8.30**, Copenhagen Tales in Song. **8.55**, Concert (contd.). **9.25**, News Bulletin. **9.35**, Concert (contd.): Danish Music. **10.0**, Dance Music from the Wivex Restaurant. In an interval at **11.0**, Town Hall Chimes. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc s, 225.9 metres; 10 kW.—**11.0 a.m.**, Radio Gazette and News Bulletin. **11.30**, Concert for Invalids. **4.0 to 8.0**, Programme in English by the I.B.C., C. Danvers-Walker, B. McNabb, and F. Lamping announcing. **4.0**, Programme for Children. **4.30**, Children's Club Concert. **5.0**, International Broadcasting Club Concert for Durham Listeners: Rakoczy March (Berlioz); Song, All through the Night (Traditional); Short Talk by Malcolm Dillon, Esq.; Song: Temple Bells (Woodforde-Finden); The Empire (Tulip); Air from Les Millions d'Harlequin (Drigo); Song: March of the Musketeers (Friml); Organ Solo: Bird Songs at Eventide (Coates); Song: A Beggar can sing the Song of a King (Guest); Medley of British Songs; Xylophone Solo: Carnival of Venice (arr. Gaston); Song: Wid de Moon, Moon, Moon (Cook); Fairy on the Clock (Myers); Song: A Banjo Song (Homer); Regimental March of the Durham Light Infantry. **6.0**, Military Band Concert: Scottish Patrol (Williams); Valse triste (Sibelius); Carry on (Dundas); Review of the Troops, General Mulcahy March (Brase); Wood Nymphs (Contes); The Standard of St. George (Alford). **6.30**, Songs: Captain Mac (Sanderson); Molly Bawn (Lover); Hits of all Countries (arr. Connelly); Glorious Devon (German); Sister o'Moyle (arr. Hughes); Jus' keepin' on (Phillips-Carter); Potpourri of Intermezzos (arr. Ancliffe). **7.0**, Organ Recital: The Butterfly Waltz (Ralton); Trees (Rasbach); On Wings of Song (Mendelssohn); Roses of Picardy (Haydn Wood); Less than the Dust (Woodforde-Finden); The Match Parade (Webbe); Home (Steeden); The White Dove (Grey). **7.30**, Concert of Dance Music: This is the rhythm for me; Knave of Diamonds; Sitting in the Dark; F[illegible] along, Kentucky Moon; Have you

APRIL 2nd **SUNDAY** *continued*

been lonely?; Willow, weep for me; Fit as a Fiddle. **8.0, Concert of Opera and Operetta Music. 9.0,** Songs: I'm playing with fire (Berlin); Brother, can you spare a dime? (Harburg); A Ghost of a chance (Washington); Pianoforte Solo: Everyone says I love you (Kalmar); Her name is Mary (Sievier); You're still my Sweetheart (Yellen); Just an Echo in the Valley (Woods); Pianoforte Solo: Butterflies in the Rain (Reaves and Myers). **9.30,** Concert of Light Music: Valse des Alouettes (Drigo); Baritone Solo: Onaway awake Beloved (Cowen); Song: Try a little tenderness (Woods); Parade of the Tin Soldiers (Jessel); Xylophone Solo: Fairy Tiptoe (Fredericks); Contralto Solo: Silvered is the Raven Hair, from The Mikado (Sullivan); Old Music Hall Memories. **10.0,** Orchestral Concert: Classical Selection (arr. Ewing); One Fine Day, from Madame Butterfly (Puccini); Autumn Leaves (Voglein); Old Spanish Song (Aubert); Träume (Wagner); Waltz Song, from La Bohème (Puccini); Shepherd's Hey (Grainger). **10.30,** Popular Half-Hour: A Boy and Girl were Dancing; Jack in the Box; Young and Healthy; The World is so small; Someone to care for; The Ghost Walk; Rhapsody in Blue; Selection from The Show Boat. **11.0,** Concert of Light Music: Waltz, Tales from the Vienna Woods (Strauss). Songs: (a) Little Grey Home in the West (Lohr), (b) Roses of Picardy (Haydn Wood); Vienna, Vienna, Songs: (a) The Last Rose of Summer (Moore), (b) Take a Pair of Sparkling Eyes, from The Gondoliers (Sullivan); Waltz, Frühlingsstimmen (Strauss). **11.30,** Hawaiian Band Concert; Hawaiian Hotel (Traditional); Duet: Makin' Wicky Wacky down in Waikiki (Hoffmann); Kilima (Traditional); Manilla Moon (Gaston); Duet: Song of the Islands (King); Hawaiian Love (Gaston); My Waikiki Mermaid (Traditional); Palikiko Blues (Traditional). **12.0 Midnight,** Club Concert for Durham Listeners: Rakoczy March (Berlioz); Song: All through the Night (Traditional); A Short Talk by Malcolm Dillon, Esq.; Song: Temple Bells (Woodforde Finden); The Empire (Tulip); Les Millions d'Harlequin (Drigo); Song: March of the Musketeers (Friml); Organ Solo: Bird Songs at Eventide (Coates); Song: A Beggar can sing the Song of a King (Guest); Medley of British Songs; Xylophone Solo: Carnival of Venice (arr. Gaston); Song: Wid de Moon, Moon, Moon (Cook); Fairy on the Clock (Myers); Song: A Banjo Song (Monier); Regimental March of the Durham Light Infantry. **1.0 a.m. (Monday),** Variety Music: Big Pond Medley; Cooking Breakfast for the one I love; Au revoir; The Solicitor; When a woman loves a Man; Oh, Sebastian; I found you. **1.30,** Songs: Good-bye to all that; Make the best of it; It happened in Monterey; Pianoforte Solo: Popular Song Medley; I need a good kind of man; Treasure; Song of the Dawn. **2.0,** The London Fire Brigade; Three's a Crowd; A Bedtime Story; Sweethearts for ever; Let's all sing like the Birdies sing; Pu-leeze, Mr. Hemmingway; My romance; I guess I'll have to change my Plan; Till to-morrow; How deep is the ocean?; Marching along together; Just because you're you; Let's all dance the Polka; You'll always be the same Sweetheart. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx). Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—10.30 a.m,** See **Leipzig. 11.0,** See **Stuttgart. 12 Noon,** See **Langenberg. 1.30 p.m.,** Agricultural Talks. **2.30,** Programme for Children. **3.30,** See **Stuttgart. 5.0,** Sacred Concert, relayed from Trier Cathedral: Address by Dr. Bornewasser, Bishop of Trier. **5.50,** Talk: Germany's Decision. **6.20,** Sports Notes. **6.30,** Reading: The Holy Coat of Trier (Görres). **7.0,** The Daughter of the Regiment—Comic Opera in Two Acts (Donizetti), relayed from the State Theatre, Cassel. **9.20,** Time, News, Weather, and Sports Notes. **9.45,** Serenade from **Langenberg. 11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—10.30 a.m,** See **Leipzig. 11.0** (from **Hanover**), Concert, relayed from Landestheater, Brunswick. **11.55,** Time and Weather. **12 Noon** (from **Flensburg**), Orchestral Concert. **1.0 p.m.,** Programme for Children. **1.35,** Reading of Ballads (Hans Friedrich Blunck). **2.0,** Military Band Concert, relayed from the Stadthalle, Schwerin. **3.15,** Running Commentary on the German Hockey Match for the Silver Shield, relayed from Vossberg. **4.0,** Literary Talk with Reading: Xanthippe. **4.15** (from **Bremen**), Choral and Mandoline Concert. **5.5,** Reading (Fritz Dörries). **5.30,** The St. Matthew Passion Oratorio (Schütz), relayed from the Church of the Holy Spirit, Kiel. **6.30,** Talk on Sail-planing. **6.40,** Sports Report. **6.55,** Weather. **7.0,** Dance Music from Opera—Concert by the Philharmonic Orchestra, conducted by Richard Richter, relayed from the Musikhalle: Soloist: Inge Burmester: Overture, and Bacchanale from Tannhäuser (Wagner); Gavotte from Alessandro Stradella (Flotow); Gingerbread Waltz from Hansel and Gretel (Humperdinck); Salomé's Dance from Salomé (R. Strauss); Elf's Dance from The Merry Wives of Windsor (Nicolai); Waltz from La Bohème (Puccini); Dance Song from Le Roi d'Yvetais (Adam); Peasant Dance from Der Freischütz (Weber); Clog Dance from Czar and Carpenter (Lortzing); Ballet Music from Act One of Alessandro Stradella (Flotow); Waltz from Der Rosenkavalier (R. Strauss). In the interval, News. **9.0,** Time and News. **9.10,** Topical Talk. **9.20,** Dance Music, relayed from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **DANZIG, 662 kc/s, 453.2 metres.—11.0 a.m. to 1.0 p.m.,** Programme from **Hamburg. 1.0 p.m.,** Talk on Chess. **1.30,** Talk for Young People. **2.0** (from **Danzig**), Concert by the D.H.V. Male Voice Choir. **3.15,** Concert of Old and new Operetta Music by the Little Station Orchestra, conducted by Engen Wilcken. Sports Notes in the interval. **5.0** (from **Danzig**). Talk. **5.30,** Meditations (Reinhold Braun). **6.0,** Song Recital with Guitar Accompaniment. **6.25,** Talk: The Romantics and Ourselves. **6.45,** Sports Notes. **7.0,** See **Vienna. 9.20** (approx.), News and Sports Notes, followed by Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**). **9.40** to **11.40 a.m.,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). **9.40,** Organ Solos. **9.45,** Programme by the V.C.J.B. Verse-Speaking Choir, relayed from **Amsterdam. 10.5,** Organ Solos. **10.10,** Divine Service, relayed from **Bloemendaal. 11.40 to 4.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.40,** Time Signal. **11.41,** Talk on Pictures. **12.10 p.m.,** Concert by the Wireless Orchestra, conducted by Nico Treep, with Interludes by a Mixed Choir. **1.40,** Weekly Book Talk. **2.10,** Concert by the Concertgebouw Orchestra, conducted by Dr. Willem Mengelberg, relayed from the Concertgebouw, Amsterdam; Soloist: Marguerite Long (Pianoforte): Sixth Symphony (Beethoven); Baron Hop Suite (Voormolen); Pianoforte Concerto (Ravel). **3.40,** Radio Play. **4.25,** Variety Music on Gramophone Records and Sports Notes. **4.40 to 7.40,** Programme of the Workers' Radio Society (V.A.R.A.). **4.40,** Programme for children. **5.40,** Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot. In the interval at **6.30,** The Adventures of Messrs. Wakker and Tropenhut. **(.50,** Orchestral Concert, conducted by H. de Groot; Soloist: H. v. Breemen (Soprano). **7.40** till Close Down, A.V.R.O. Programme. **7.40,** Time Signal. **7.41,** News Bulletin. **7.55,** Concert of Light Music by Marek Weber and his Orchestra. In the interval at **8.40,** Recitations. **9.25,** Popular Music on Gramophone Records. **9.40,** Concert by the Pupils of Rose Schönberg and the Wireless Orchestra, conducted by Nico Treep: Overture, The Secret Marriage (Cimarosa); Dignare (Handel); Aria from Giulio Cesare (Handel); Meiner allerliebsten Schönen (L. C. Bach); Wenn nach der Stürme Toben (Bach); Dir Seele des Weltalls (Mozart); Trio from Orpheus (Gluck); Wiegenlied (Brahms); O, Tod wie bitter bist du (Brahms); Gramophone Records, Songs from The Huguenots (Meyerbeer); Duet from L'enfant prodigue (Debussy); Printemps que commence, from Samson and Delilah (Saint-Saëns); Segundilla (Bizet); Quartet from Rigoletto (Verdi). **10.55,** Light Music on Gramophone Records. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.10 to 4.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **12.10,** Sextet Concert. **1.50,** Religious Address. **2.10,** Concert by the Semper Crescendo Orchestra, conducted by A. van Nisselrooy: Soloist: H. C. Willems (Pianoforte). **3.40,** Programme for Invalids. **4.40 to 7.25,** Programme of the Christian Radio Society (N.C.R.V.). **4.40,** Divine Service, relayed from the Reformed Church, Leyden. **6.10,** Organ Recital by A. Smink. **6.40,** Sacred Music on Gramophone Records. **7.25 till Close Down,** K.R.O. Programme. **7.25,** Talk. **7.50,** Football Results. **7.55,** Concert by the K.R.O. Boys, conducted by P. Lustenhouwer; Soloist: J. Mossel (Songs). **8.40,** News. **8.45,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen; Soloist: Anna El Tour (Songs): Selection from Prince Igor (Borodin); Prélude à l'après-midi d'un faune (Debussy); Air from L'enfant prodigue (Debussy); Selection from The Damnation of Faust (Berlioz). **9.25,** Song Recital by Anna El Tour. **9.40,** Orchestral Concert (contd.): Overture, A Life for the Czar (Glinka); Air from Christmas Eve (Rimsky-Korsakov); Suite, La Source (Delibes); Valse fantastique (Glazunov). In the interval, News. **10.20,** Epilogue by the Small Choir, conducted by J. Pickkers. **10.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc s, 249.6 metres; 0.8 kW.—**7.30 p.m.,** Radio Concert. **7.50,** News Bulletin. **8.0,** Radio Concert. **9.30,** Programme in English by the I.B.C., H. K. Hitchcock announcing.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc s, 473 metres; 60 kW.—**10.30 a.m,** See **Leipzig. 11.5,** Extracts from Bismarck's Speeches. **11.35,** Music Talk. **12 Noon,** Orchestral Concert, conducted by Eysoldt. **1.30,** Shorthand Lesson. **1.50,** Talk: The Stars in April. **2.10,** Agricultural Talk. **2.30,** Maundy Thursday in Liturgical Song—Sacred Concert by the Knechtsteden Abbey Choir, with Introductory Talk and Commentary by Dr. Dominikus Johner, Prior of the Benedictine Abbey of Beuron: Responsorium; Gradual, Introit, Offertory and Communion from the Mass for Maundy Thursday; Antiphon: Domine, tu mihi lavas pedes; Processional Hymn: Pange lingua. **3.30,** Running Commentary on the West German Handball Championship. **4.0,** See **Stuttgart. 5.0,** Talk: The Minorities Question. **5.20,** Radio Report on Gramophone Records. **5.40,** Reading: Der letzte Tag (Hans Franck). **6.0,** The World on Gramophone Records: Folk Songs from Corinthia. **6.25,** Talk: The German Population in Bulgaria. **6.45,** Sports Report. **7.0,** Hubert Pfeiffer Memorial Concert by the Bürgerhaus Choir, the Velbert Concert Society and Soloists. **7.35,** Legends and Fairy Tales in German Opera—Concert by the Station Orchestra, conducted by Kühn. Soloists: Hansen (Soprano), Wocke (Baritone), Krenehanff (Tenor), and Strienz (Bass). Commentary by Paul Heinrich Gehly. Overture, Oberon (Weber); Tenor Aria from Der Freischütz (Weber); Bass Aria from Der Freischütz (Weber); Ballet Music from Undine (Lortzing); Baritone Aria from Hans Heiling (Marschner); Overture and Senta's Ballad from The Flying Dutchman (Wagner); Siegfried's Rhine Journey (Wagner); The Legend of the Grail from Lohengrin (Wagner); Suite from Hansel and Gretel (Humperdinck). **9.5,** News and Sports Notes. **9.20,** Concert of Light Music and Dance Music, conducted by Eysoldt. **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc s, 319 metres.—10.30 a.m.,** Vergnügte Ruh, beliebte Seelenlust—Cantata (Bach), by the Municipal and Gewandhaus Orchestra and Soloists. **11.0 to 1.0 p.m.,** Programme from **Hamburg. 1.0,** Weather and Time Signal. **1.5,** Programme Announcements. **1.25,** Agricultural Hints. **1.30,** Chamber Music by the Dessau String Quartet: String Quartet (Franz Meyer-Ambros); String Quartet in One Movement, Op. 13 (Robert Keldorfer). **2.10,** Reading. **2.45,** Hugo Kaun Song Recital by Arthur Fleischer. **3.20,** The Golden Pitcher—a Fairy Tale (E. Th. A. Hoffmann, arranged as a Radio Play by Dr. H. Harksen). **4.50,** Concert of Light Music by the Leipzig Symphony Orchestra, conducted by Willy Steffen. **5.30,** Das Liebesmahl der Apostel—a Biblical Scene for Male Voice Choir and Orchestra (Richard Wagner). **6.0,** Topical Reports: (a) The Launching of the Battleship Deutschland and of the Second Battleship, (b) The Final of the Competition for the German Hockey Association's Silver Shield. **6.50,** Topical Talk. **7.0** till Close Down, See **Vienna.** In the interval at **9.20** (approx.), News. **11.0** (approx.), Close Down

LINZ.—See **Vienna.**

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**3.45 p.m.,** The Messiah—Oratorio (Handel), relayed from the Salle Rameau. Conductor: M. Witkowski. After the Oratorio, Programme relayed from **Paris,** and News Bulletin. **10.0** (approx.), Close Down.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**10.30 p.m.,** Concert of Light Music. In the interval at **10.45,** Humorous Talk. **11.35,** Talk. **11.40,** Popular Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 to 9.0 a.m.,** Topical Review. **11.30,** Concert by the Madrid Municipal Band, conducted by M. Villa. **2.0 p.m.,** Chimes, Time Signal, Theatre Notes and Concert by the Artys Orchestra. **4.0 to 7.0,** Interval. **7.0,** Chimes and Dance Music relayed from the Ritz Hotel. **8.30 to 9.30,** Interval. **9.30,** Chimes and Time Signal. **9.35** (approx.), Pianoforte Recital by Carolina Paczenik, Interlude by Ramon Gomez de la Serna, Song Recital by Jose Augerri, and Music by a Cuban Orchestra. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc s, 263.8 metres; 11 kW. **10.0 a.m.,** See **Prague. 11.5,** See **Brno. 12.30 to 2.45 p.m.,** See **Prague. 2.0,** See **Bratislava. 4.15 to 5.45,** See **Prague. 6.0,** See **Brno. 7.0,** See **Prague. 9.20,** See **Bratislava. 10.0** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563, kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres,** and **Nürnberg, 1,256 kc/s, 239 metres.—10.30 a.m.,** See **Leipzig. 11.0,** Concert by the Station Orchestra, conducted by Karl List; Soloist: Josef Köhler (Cello). **12.5 p.m.,** Time, Weather, and Programme Announcements. **12.15** (from **Nürnberg**). Agricultural Talk. **12.35,** Gramophone Concert of Popular Music. **1.30,** Chess Lesson. **2.15,** Wireless Hints. **2.35,** Programme for Children. **2.55,** Orchestral Concert, conducted by Erich Kloss, with Humorous Interlude in Palatine Dialect. **4.20,** Der ledige Hof (The Lone Farm)—Radio Play in Five Scenes (Ludwig Anzengruber). **5.50,** Immortal Words and Works—Literary and Musical Programme. **6.30,** Weather and Sports Notes. **6.40,** Talk: Among the Farmers of the Palatinate. **6.55** (approx.), Popular Concert by the Munich Philharmonic Orchestra, conducted by Willy Haenel-Christiansen, relayed from the Tonhaile: Ballet Music from Prometheus (Beethoven); Three Movements from the Septet in E Flat, Op. 20 (Beethoven); Organ Piece (Beethoven); Symphonic Poem, Francesca da Rimini (Tchaikovsky); Italian Caprice (Tchaikovsky); Overture and Opening Song from Prince Methuselah (Joh. Strauss); Czardas from Die Fledermaus (Joh. Strauss); Wiener Blut (Joh. Strauss). In the second interval, News. **10.0** (approx), Time, Weather, and News, followed by Serenade from **Langenberg.**

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc s, 574.7 metres; Notodden, 671 kc s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc s, 447.1 metres.—9.15 a.m.,** Weather and Road Report. **9.50,** Chimes and Divine Service Relay. **4.0 p.m.,** Concert of Operetta Music, relayed from the Hotel Continental. **5.0,** Talk. **5.30,** Sacred Song Recital by Dagny Sandvik. **6.0,** Parliamentary Review. **6.15,** Weather and News. **6.30,** Chamber Music. **7.0,** Time Signal. **7.2,** Programme dedicated to Mandal—Talks and Concert of Norwegian Music, Songs and Dances. **8.40,** Weather and News. **9.0,** Topical Talk. **9.15,** Orchestral Concert: Selection from Rigoletto (Verdi); Summer Evening (Heyerdahl); Prelude (Granados); Blekkokker (Liljefors); Norwegian Peasant Dance (Bordi); Mock Morris (P. Grainger).

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW. **9.25 a.m.,** Bible Reading. **9.40,** Sacred Music. **10.5,** Agricultural Talk. **11.45,** Giornale Radio. **12.0 noon,** Concert by the Sunny Band Quartet. **12.30 p.m.** (in an interval), Time Signal, Announcements and Weather Forecast. **1.0 to 4.30,** Interval. **4.30 to 5.30,** Light Music on Gramophone Records. **7.0,** Dopolavoro Announcements and Giornale Radio. **7.20,** Sports Talk. **7.30,** Time Signal and Announcements and Light Music on Gramophone Records. **7.45,** Symphony Concert, conducted by F. Russo: Scènes alsaciennes (Massenet); Trittico Botticelliano (Respighi); Symphony, No. 9 (Beethoven). In the Interval, Talk. **9.0,** Song Recital. **9.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals on **2,650 metres),** at **9.26 a.m.,** and **10.26 p.m.** (Preliminary and Code Signals).—**12 Noon,** News Bulletin. **12.15 p.m.,** Weather Report. **12.30 to 1.30,** Concert by Jean Ibos and his Orchestra: Part I: Cigany Music; Part II: Larghetto (Mozart); Ich liebe dich (Grieg); Sous les tilleuls (Massenet); March from The Ruins of Athens (Beethoven). **5.45,** Le Journal Parlé. **6.45,** Programme for Children. **7.20,** Weather Forecast. **7.30,** Gramophone Concert: Part I: Extracts from (a) The Huguenots (Meyerbeer), and (b) La Juive (Halévy); Part II: Variety Music. **9.0** (approx.), Close Down.

APRIL 2nd SUNDAY *continued*

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—8.45 a.m., Bible Reading. 9.0, News. 9.5 to 10.40, Sponsored Concerts. 10.40, Sponsored Gramophone Concert. 11.15, Extracts from Sound Films—Sponsored Programme. 11.45, Sponsored Talk. 11.50, Half-an-Hour of Fantasy by Paul Weill. 12.20 p.m., Interval. 12.30, Sponsored Concert. 1.0 to 5.45, Interval. 5.45, Journal Parlé. 6.0, Sports Notes. 6.15, Popular Music on Gramophone Records. 6.30, Catholic Review. 7.0, Interval. 7.15, Popular Music on Gramophone Records. 7.45, Interval. 8.0, L'Ephémère (Radio Play (Michel Ferry). 8.30, Interval. 8.40, Orchestral Concert, conducted by M. Arbanel: Overture, Le Voyage en Perse (Filipucci); Song of the Mill (Lazzari); Joyeusement (Rhéne Baton); Canzonetta for Clarinet and Strings (Pierné); Minuet from Henry VIII (Saint-Saëns); Rêverie interrompue (Tchaikovsky); Danse russe (Tchaikovsky); Ballet Music from Coppelia (Delibes); March of the Highlanders (Godard). 9.40, News.

PARIS

RADIO PARIS; Call CFR; 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Light Music on Gramophone Records. 7.0, Press Review and Weather. 7.30, Physical Culture. 9.0, Elementary Book-keeping Lesson. 9.20, Advanced Book-keeping Lesson. 9.40, Spanish Lesson. 10.30 to 11.0, Programme in English by the I.B.C. Gramophone Concert, Mr. T. St. A. Ronald announcing. 11.0, Religious Address. 11.20, Sacred Music. 11.30, Bilboquet. 11.45, Press Review, News, and Weather. 12 Noon, Gramophone Concert. Part I: Programme for Children. Part II: Classical Music. 12.30 to 1.30 p.m., Interval. 1.30, Gramophone Concert of Popular Music. 2.0 to 2.30, Programme in English by the I.B.C. Orchestral Concert. March, Washington Post (Sousa); Selection from The Count of Luxembourg (Lehár); Foxtrot, In a Shanty in old Shanty Town; Selection from Lilac Time (Schubert); Waltz (Fall); Selection from Chu Chin Chow (Norton). 2.30, Gramophone Concert of Light Music. 3.0 to 4.0, I.B.C. Programme in English by the I.B.C. 3.0, Tea-Time Variety Hour. Announcer: Mr. S. H. C. Williams. 4.0, Fifth Lenten Sermon, relayed from Notre Dame. 5.30, Variety Concert. 6.0, Popular Concert. 6.30, Variety Concert. 7.0, Music Hall Programme. In the intervals at 7.20, News, Sports Notes and Weather, and at 8.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—9.0 p.m., Dick Daring, from **New York.** 9.15, Temple of Song, from **New York.** 9.30, Vesper Services from Shadyside Presbyterian Church. 10.30, Pages of Romance, from **New York.** 11.0, Sealed Power, from **New York.** 11.30, Time Signal. 11.31, Weather Report. 11.32, Teaberry Sport Review. 11.37, Press News Reeler. 11.44, Temperature Report. 11.45, The Fireflies. **12 Midnight,** Time Signal and Smith Ballew and his Orchestra. **12.30 to 3.45 a.m. (Monday), New York** Relay. 12.30, Great Moments in History. 1.0, The Land where the Good Songs go. 2.0, Twenty Thousand Years in Sing Sing. 2.30, Walter Winchell. 2.45, Pickens Sisters. 3.0, D. W. Griffith's Hollywood. 3.15, Lopez and the two Doctors' Comic Congress. 3.45, Don Lucas Piano Opera. 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.15, Press Last-minute News. 4.20, Alexander Roy (Tenor). 4.30, Jesse Crawford (Organist), from **New York.** 5.0, Time Signal and Goodnight.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW. 10.0 a.m., Brahms Concert by the Prague Quartet, Clarinet Quintet, Op. 115; Pianoforte Quintet in F Minor, Op. 84. **11.0,** Chimes. **11.5,** See **Brno. 12.30 p.m.,** Agricultural Report. **12.45,** Social Report. **12.55 to 2.0,** Interval. **2.0,** See **Bratislava. 4.15,** Variety Music on Gramophone Records. 4.30, Talk. 5.0, German Transmission: Concert by the Stalfelstein Choral Society, and News. 6.0, See **Brno.** 7.0, Literary and Musical Programme. 7.30, Recital of John Dowland's Madrigals by the Aim Vocal Quartet. 8.0, Time Signal. 8.1, Concert by the Station Orchestra, conducted by Otakar Jeremias. Soloist: Stanislav Novák (Violin). 9.0, Time Signal. 9.1, News Bulletin. 9.20, See **Bratislava.** 10.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Genava, 395 kc/s, 760 metres.**—8.55 a.m. (from **Geneva**), Chimes. 9.0 (from **Geneva**), Protestant Service Relay. 10.0 (from **Geneva**), Light Music on Gramophone Records. 11.0 (from **Geneva**), Readings. 11.30, News Bulletin and Weather Forecast. 11.40 (from **Geneva**), Light Music on Gramophone Records. 1.0 to 2.0 p.m., Interval. 2.0 (from **Geneva**), Running Commentary on the International Football Match—Italy v. Switzerland—relayed from the Parc des Sports. 5.30 (from **Lausanne**), Religious Address. 6.0 (from **Geneva**), Chopin 'Cello Recital by Henry Buenzod: Sonata in G Minor, Op. 65; Introduction and Polonaise brillante, Op. 3. 6.40 (from **Lausanne**), Sports Results, News, and Announcements. 7.0 (from **Lausanne**), Concert of Chamber Music by the Ribaupierre Quartet. 8.0, Concert by the Station Orchestra. 9.0, News and Weather. 9.15 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,810 kc/s, 25.4 metres.**—9.10 a.m., News, Sports Notes, and Amusement Guide. 9.30, Agricultural Report. 9.45, Bible Reading. 9.58, Mass from the Church of the Annunciation, Florence. **11.0 to 11.30,** Interval. **11.30 to 1.30 p.m., see Turin.** In the interval at 1.0 p.m., Time and News. 2.0, Relay of the Football Match, Italy v. Switzerland, from **Geneva.** 4.0, Symphony Concert, conducted by Bernardino Molinari, relayed from the Teatro Augusteo: Suite for Strings (Guerrini); Partita (Petrassi); Suite from Robinson e Venerdi (Rieti); Concerto for Pianoforte and Strings (Pizzetti). 6.30, Sports Notes, Dopolavoro Notes and News. 7.0, Time and Announcements. 7.30, Sports Notes. 7.40, The Toreador Operetta in Three Acts (Ivan Carryl—Lionel Monckton). In the intervals, Two Talks. After the Programme, News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres;** and by **W2XAD** on **19.56 metres.**—7.0 to 9.0 p.m., **New York** Relay. 7.0, Clyde Doerr and his Saxophone Octet. 7.15, International Radio Forum. 7.30, Joe Green and his Marimba Band. 8.0, Wayne King's Orchestra. 8.30, Hour of Worship. **12 Midnight,** Dr. Franck Sill Rogers (Organist). **12.15 a.m. (Monday),** Wheatenaville—Sketch from **New York. 12.30,** Horse Sense Philosophy. **12.45 to 2.30, New York** Relay. 12.45, Musical Programme. 1.0, Chase and Sanborn Hour. 2.0, General Electric Sunday Circle Concerts. 2.30, American Album of Familiar Music, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres.**—0.0 a.m. (from **Berne**), Catholic Service. 9.45 (from **Berne**), Popular Music on Gramophone Records. 10.10 (from **Berne**), Gassenhauer Trio (Mozart), on Gramophone Records. 10.25 (from **Berne**), Reading, Des Königs getreue Dienerin (Hedwig Anneler). 10.40 (from **Berne**), Cornelius and Reger Song Recital by Erwin Tüller (Tenor) and Ernst Schläfli (Baritone). 11.0 (from **Berne**), Die Musik kommt. Two Hundred Years of Marching Music. 11.28, Time and Weather. 11.30, News. 11.40 (from **Berne**), A Musical Menu on Gramophone Records. **12 Noon (from Basle),** Report on the Sample Fair's Grand Prix for Motor-Bicycles and Sidecars. 12.30 p.m. (from **Berne**), Agricultural Notes. 12.32, Musical Programme, Ländler Music by Immergrün. Songs by Grittli Wenger. 1.0 (from **Berne**), Talk: Small Swiss Gardens and Possibilities for their Development. 1.50, Report on the Italy v. Switzerland Football Match. 3.40 (approx.) (from **Berne**), Paris Waltzes on Gramophone Records. 4.0, Weather. 4.35 to 5.30, Interval. 5.30 (from **Berne**), Talk on French Literature from 1820 to 1930. 6.0, Time, Weather, and Sports Notes. 6.10 (from **Berne**), Organ Recital of Music by Jean Titelouze, Nicholas Gigault, and Louis Claude d'Aquint, relayed from Saint Nicholas Cathedral. Organist: Josef Gogniat. 6.40 (from **Berne**), Folk Songs by the Bumpliz Women's Choir, conducted by Walther Aeschbacher. 6.55 (from **Berne**), Talk: Freiburg Legends. 7.25 (from **Berne**), Offenbach Music on Gramophone Records. 7.45 (from **Berne**), Le soixante-sizième—One-Act Operetta (Offenbach). 8.30, Weather and News. 8.40 (from **Berne**), Gramophone Concert by Jack Hylton's and Paul Whiteman's Bands. 9.15, Sports Notes. 9.25 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—10.0 a.m., Divine Service Relay. 11.45, Weather and Ice Report. 1.30 p.m., Concert by the Orpheus Choir, relayed from the Royal Academy of Music. Conductor: Sven Lizell. 2.30, Talk in German: A Picture of Salzburg. 2.50, Programme for Children. 3.35, Popular Music on Gramophone Records. 4.30, Reading. 5.0, Evensong, relayed from **Malmö, 1,301 kc/s, 231 metres.** 6.15, Weather and News.

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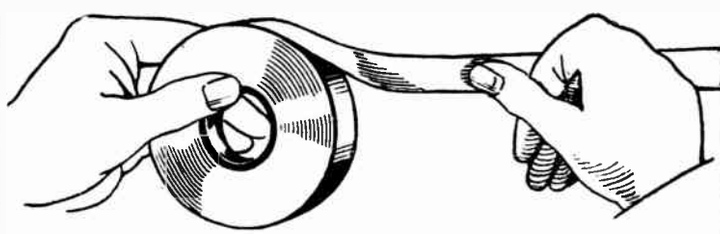

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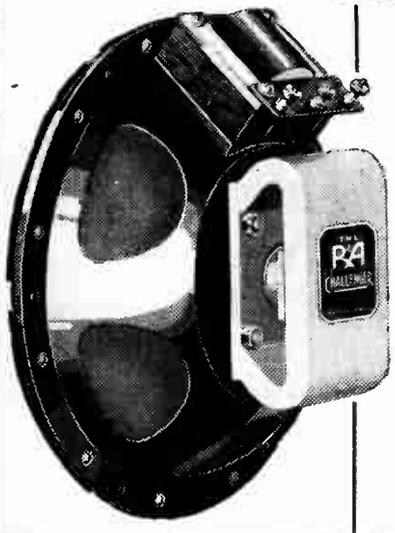

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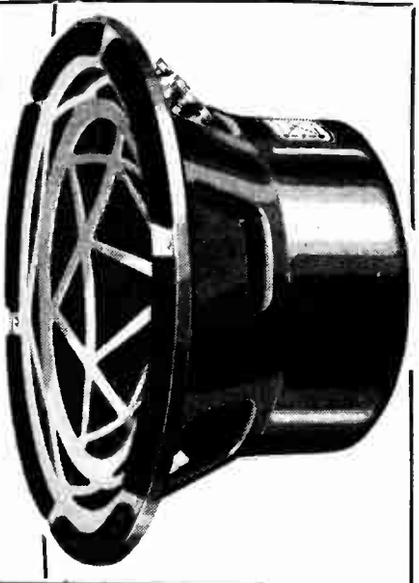

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FREDERICK ST., WOLVERHAMPTON.

APRIL 2nd SUNDAY *continued*

6.30, Concert. Märta Byström (Songs), Axel Runnquist (Violin), and W. Witowsky (Pianoforte): Sonatina in E for Violin and Pianoforte (Sibelius); Three Songs (Backer-Gröndahl); Pianoforte Solos: (a) Meditation (Jonsson), (b) Impromptu in F Sharp (Björkander); Songs (Grieg): (a) Mit einer Wasserlilie, (b) Erstes Begegnen, (c) Song, (d) Margareten's Wiegenlied; Pianoforte Solo: Suite, Aus Holbergs Zeit (Grieg). 7.30, L'homme que j'ai tué—Play (Maurice Rostand). 8.45, Weather and News. 9.0, Concert of Light Music. 10.0 (approx.), Close Down.

STRASBOURG

869 kc s, 345 metres; 11.5 kW. **8.30 a.m.,** Orchestral Concert of Classical Music, conducted by Maurice de Villers. 9.45, Protestant Service in French. **10.30,** Catholic Service in German. **11.0,** Popular Music on Gramophone Records. **11.45,** News. **12 Noon,** Time and Dance Music on Gramophone Records. **1.0 p.m.,** Gardening Talk in French. **1.15 to 2.0,** Interval. **2.0,** Symphony Concert, relayed from the Conservatoire, Paris. **3.30,** Sacred Concert by the Cathedral Choir and Soloists, relayed from the Palais des Fêtes. Conductor: M. Loch. **6.0,** Talk: Games for Children. **6.15,** Sports Notes. **6.30,** Time and News. **6.45,** News and Sports Notes. **6.45,** Variety Music on Gramophone Records. **7.20,** Lottery Results. **7.30,** Concert, relayed from the Salle des Fêtes, Thann. Conductor: E. Reitzer. Soloists: C. Ourisson (Pianoforte), M. Schmitt-Weiss (Violin), J. Rufenacht ('Cello) and A. Schreiber (Clarinet). March from Tannhäuser (Wagner); Overture, The Nuremberg Doll (Adam); Selection from La Fille de Madame Angot (Lecocq); Violin Solos: (a) Andantino (Martini-Kreisler), (b) Rêverie (Dancla), (c) Tempo di Minuetto (Pugnani-Kreisler); Pianoforte Solos: (a) Prelude in G Minor (Rachmaninov), (b) Novelette (Schumann); Trio, Op. 11, for Pianoforte, Clarinet and 'Cello (Beethoven); Coronation March from Louise (Charpentier); Overture, Le lac des Fées (Auber); Ballet Music from Faust (Gounod). **9.25,** Jazz Music relayed from the Savoy. **11.0** (approx.). Close Down.

STUTTGART

MUHLACKER, 832 kc s, 360.5 metres; 60 kW; and **FREIBURG, 527 kc s, 570 metres.**—**10.30 a.m.,** See **Leipzig. 11.0 a.m.,** Band Concert from Freiburg. **12 Noon,** Topical Talk. **12.15,** Ottmar Gerster: Song Recital by Bruno Müller (Baritone). **12.45,** Agricultural Talk. **1.10,** Gramophone Records of Waltzes. **1.35,** Reading from the Works of Hans Carossa. **2.0,** (from **Karlsruhe**. Mandoline Concert). **2.30,** See **Frankfurt. 3.25,** Concert by the Stuttgart Philharmonic Orchestra, conducted by Gustav Görlich: Soloist: Rudolf Ritter (Tenor): Overture, Alessandro Stradella (Flotow): Prayer from Oberon (Weber): Selection from Der Evangelimann (Kienzl); Aria from Der Evangelimann (Kienzl); La Farandole (Bizet); Aria from Joseph (Méhul); Intermezzo from Cavalleria rusticana (Mascagni); Othello's Death from Othello (Verdi); Old Dances and Marches. **5.0,** Sports Notes. **5.15,** Die Hermannsschlacht Drama (Christian Dietrich Grabbe). **6.30,** Humorous Upper Bavarian Programme: Three Radio Sketches. **7.0** (approx.). See **Frankfurt. 9.15,** Time, News, Weather Programme Announcements and Sports Notes. **9.45** (from **Mannheim**), Song Recital: Gesänge ume Gott (Wilhelm Loeks). **10.15,** Programme from Langenberg. **11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc s, 385 metres; 8 kW.—**11.15 a.m.,** News. **11.30,** Catholic Service. **12 Noon,** Amusement Guide and Market Prices. **12.5 p.m.,** Instrumental Solos. **12.15,** Popular Melodies. **12.30,** Orchestral Music. **12.40,** Agricultural Prices. **12.45,** Protestant Service. **1.15,** News Bulletin. **1.20,** Light Orchestral Music. **1.45,** Operetta Music: Extracts from La Vie Parisienne (Offenbach), Paganini (Lehár), and The Land of Smiles (Lehár). **2.0,** Music by a Viennese Orchestra. **2.15,** News and Racing Results. **2.20,** Popular Melodies. **2.30,** Opera and Opera-Comique Music: Selection from Rigoletto (Verdi); Overture, The Huguenots (Meyerbeer); Overture, Mignon (Thomas); Prelude to the First Act of Carmen (Bizet); Overture, The Barber of Seville (Rossini). **3.0,** Popular Melodies. **3.15,** Racing Results and News. **3.20,** Accordion Music. **3.30,** Dance Music. **4.0,** Light Orchestral Music. **4.15,** News and Racing Results. **4.20,** Opera Music: Selection from Lohengrin (Wagner), and Le Roi d'Ys (Lalo). **4.30,** L'apprenti sorcier (Paul Dukas), by the Symphony Orchestra. **4.45,** Opera Melodies: Selection from Manon Lescaut (Auber); Carmen (Bizet); Si j'étais roi (Adam) and Mignon (Thomas). **5.0,** News Bulletin. **5.15,** 'Cello Recital. **5.30 to 6.0,** Programme in English by the I.B.C.: W. Brown Constable announcing. **5.30,** Concert of Light Music: There's Something about a Soldier; Have you Ever Been Lonely?; Selection from Cavalcade; I want to go Home; I may Never pass your way Again; The Night was made for Love; When anybody plays or Sings; Love will find a Way. **6.0,** Military Music. **6.15,** News Bulletin. **6.25,** Local News. **6.30,** Music by a Viennese Orchestra. **7.0,** Sound Film Music. **7.15** Orchestral Music. **7.30,** La Fille et le Garçon Concert Version of the Sound Film. **8.10,** Accordion Recital. **8.30,** Operetta Music: Selection from The Bayadère (Kálmán), Le Comte Obligado (Moretti), and Rose Marie (Friml). **8.45,** Popular Concert. **9.15,** North African News. **9.30 to 11.0,** Programme in English by the I.B.C. **9.30,** Variety Music: My Lover; A Music Hall Show in Grandpa's Day; Poppies; The Mountain Refrain; Blue Hawaii; Sweeping the Clouds Away; Maggie and me and the Baby. **10.30,** Variety Half-Hour. A selection of good old Songs: Love's Old Sweet Song; The Good Ship Yacki Hicky Boola; It's a Great Big Shame; Lily of Laguna; The Spaniard that Blighted my Life; Plantation Memories. **11.0,** News and Weather. **11.5,** Orchestral Music. **11.30** (approx.). Close Down.

TRIESTE

1,211 kc s, 247.7 metres; 10 kW. **8.40 a.m.,** See **Turin. 8.55,** Mass from the San Giusto Cathedral. **10.0,** Religious Address. **10.20,** Agricultural Report. **10.40 to 11.0,** Interval. **11.0 till** Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc s, 331.5 metres; Genoa, 959 kc s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**8.40 to 8.55 a.m.,** Giornale Radio. **9.40,** Agricultural Report. **10.0,** Mass from the Church of the Annunciation, Florence. **11.0 to 11.15,** Religious Programme. **11.30,** Concert by the Radio Orchestra. In the interval at **12 Noon,** Time and Announcements. **12.30,** Orchestral Concert. **1.15 to 2.0,** Interval. **2.0,** Running Commentary on the International Football Match, Italy v. Switzerland, relayed from **Geneva.** In the interval, Light Music on Gramophone Records, and Sports Notes. **4.0,** See **Rome. 5.0,** Giornale Radio and Sports Notes. **6.0,** Time and Announcements. **6.10,** Light Music on Gramophone Records. **6.30,** Time, Announcements, and Gramophone Records. **7.0,** Giornale Radio, Sports Notes, and Gramophone Records. **7.45,** Rompicollo—Operetta in Three Acts (Pietri), relayed from the Scala, Milan. In the intervals, Talk and Theatre Notes. After the Operetta, Giornale Radio.

VIENNA

581 kc s, 517 metres; 15 kW. Relayed by **Graz, 852 kc s, 352.1 metres; Innsbruck, 1,058 kc s, 283 metres; Klagenfurt, 662 kc s, 453.2 metres; Linz, 1,220 kc s, 245.9 metres,** and **Salzburg, 1,373 kc s, 218.5 metres. 10.25 a.m.,** Symphony Concert by the Vienna Symphony Orchestra, conducted by Hugo Reichenberger. Soloist: Cornelius Czarniawski (Pianoforte). **11.45 to 1.0 p.m.,** Concert of Light Music. **2.0,** Time and Programme Announcements. **2.5,** Review of Books. **2.30,** Chamber Music by the Rothschild Quartet: String Quartet in F (Ravel); String Quartet in C, Op. 59, No. 3 (Beethoven). **3.30,** Talk: The World of Islam. **4.0,** Orchestral Concert of Light Music. **5.25,** Talk: With the Germans in Romanian Banat and Transylvania. **5.55,** Hans Heyck reads from his own Works. **6.25,** Variations on an Original Theme, Eroica Variations (Beethoven). **6.50,** Time, Sports Notes and Programme Announcements. **7.0,** Rip van Winkle—Operetta in Three Acts (Planquette). **8.20,** News Bulletin. **8.35,** Frühling—Operetta in One Act (Lehar). **9.35,** Dance Music from the Café Splendide.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Weather Forecast. **11.15,** Concert by the Warsaw Philharmonic Orchestra, conducted by L. Gröndela. Soloists: Time, Elsa Breins (Songs) and M. Karin Rossander (Violin). In the interval, Talk. **1.0 p.m.,** Veterinary Talk. **1.20,** Concert of Popular Music by a Mandoline Orchestra. **1.40,** Talk: Household Management during the Crisis. **2.0,** Choral Concert, followed by Music by the Mandoline Orchestra (contd.). **3.0,** Programme for Children. **3.25,** Light Music on Gramophone Records. **3.45,** Talk. **4.0,** Pianoforte Recital by Mme. Dwojno-Sołłohub. **4.35,** Song Recital by S. Zmecz: Air from Eugen Onegin (Tchaikovsky); Song from Verbum nobile (Moniuszko); Song (Nuevadovsky); Occhi di fata (Denza); Air from The Barber of Seville (Rossini). **4.55,** Programme Announcements. **5.0,** Concert of Light Music. In the interval, News. **6.0,** Miscellaneous Items. **6.25,** Talk: Mind and Matter. **7.0,** Choral Concert. **7.55,** Sports Notes. **8.5,** Concert by the Station Orchestra, conducted by Nicolas der Pals. **9.5,** Song Recital by M. Salecki. **9.30,** Dance Music. **9.55,** Aviation Weather Report and Notices. **10.0,** Dance Music.

ZURICH.—See **Schweizerischer Landessender.**

MONDAY
APRIL THE THIRD

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Symphony concert from the Queen's Hall.
LONDON REGIONAL	Variety programme.
MIDLAND REGIONAL	Band and orchestral concert.
NORTH REGIONAL	Band programme; Marches of the Northern Regiments.
WEST REGIONAL	"The Mirror," a play by H. A. Vachell, from Bristol.
SCOTTISH REGIONAL	"What's Intilt?" a programme of old favourites and new pieces.
BELFAST	Vaudeville programme.

ABROAD

BRUSSELS (No. 1)	7 p.m. Opera: "Lara" (Marsick).
BRUSSELS (No. 2)	7.30 p.m. Chamber music from Salle Patria, Antwerp.
BUDAPEST	7.10 p.m. Igor Stravinsky concert, conducted by the composer.
HAMBURG	6.30 p.m. Brahms concert relayed from Hanover.
HILVERSUM	7.55 p.m. Operetta: "Ten Maids and No Man" (Suppé).
LANGENBERG	7.15 p.m. Operetta: "Das Spitzentuch der Königin" (J. Strauss).
RADIO-PARIS	7 p.m. Opera: "The Barber of Seville" (Rossini).
ROME	8 p.m. Orchestral concert, conducted by U. Tansini.
STRASBOURG	7.30 p.m. Concert from Metz.
TURIN	8 p.m. Sponsored concert.
WARSAW	7.15 p.m. Operetta: "Night of Love" (Valentinov).

ALGIERS

824 kc/s, 364 metres; 13 kW.—**7.0 p.m.,** Financial News. **7.10,** Shipping Notes. **7.15,** Weather Forecast and Agricultural Report. **7.20,** Songs from Sound Films. **7.40,** Press Review. **7.55,** News. **8.0,** Time Signal. **8.2,** Book Review. **8.15,** Tchaikovsky Concert by the Station Orchestra: Overture, Romeo and Juliet; Waltz from Eugene Onegin. **8.35,** Talk on Algiers. **8.50,** News. **8.55,** Tchaikovsky Concert (contd.): The Pathetic Symphony. **9.35,** News. **9.40,** Instrumental Solos. **9.55,** News Bulletin. **10.0** (approx.), Close Down.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** Talk on Housing by the Minister of Local Government and Public Health. **8.0,** Concert by the R.I.A.M. Students' Musical Union, relayed from the Royal Academy. **8.0,** What's in a Name?—Sketch by the Ulidia Players. **9.30,** The Station Orchestra. **10.0,** Pipe and Fiddle Music. **10.15,** Irish Music by the Station Orchestra. **10.30,** Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **6.30,** Quintet Concert, relayed from the Café de la Rambla. **7.30,** Sports Notes, Exchange Quotations and Talk in Catalan. **8.0,** Light Music on Gramophone Records and News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. **9.5,** Humorous Review of the Week in Verse. **9.15,** Concert of Sardanas. **10.0,** Literary and Musical Programme. **10.30,** Catalan Radio Gazette. **11.0,** News Bulletin. **11.15** (approx.), Concert by the Station Orchestra: Overture, The Barber of Seville (Rossini); Suite, Les Erynnies (Massenet). **11.30,** Dance Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes, Tourist Report, and Dopolavoro Notes. **7.20,** Giornale Radio. **7.30,** Time and Announcements. **7.35** (approx.), Madame Butterfly—Opera (Puccini) on Gramophone Records. In the intervals, Talk and Announcements. After the Opera, News.

BASLE.—See **Schweizerisher Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.0 p.m.,** Talk. **6.40,** Light Music on Gramophone Records. **6.50,** Introductory Talk to the following Transmission. **7.0,** An Opera, relayed from the National Theatre. In an interval at **8.30** (approx.), News Bulletin.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert, relayed from **Berlin (Witzleben).** **2.0,** Talk for Women: Making Spring Pullovers. **2.30,** Weather and Exchange. **2.45,** Review of Books on Revolutions. **3.0,** Educational Talk. **3.30,** See **Berlin (Witzleben).** **4.30,** String Quartet, Op. 9 (Rudolf Peterka). **5.0,** Talk for Civil Servants. **5.30,** Friedemann Bach Recital for two Flutes and Pianoforte, with Introductory Talk. **5.55,** Weather and Announcements. **6.0,** Talk: The Author, Hans Franck. **6.30,** A Poem. **6.35,** Light Music by the Kirschke Band: Minuet from the Divertimento (Mozart); Siegmund's Love Song from The Valkyries (Wagner); Intermezzo (Clemens Schmalstich); Waltz, Wiener Bonbons (Joh. Strauss). **7.0,** Heinrich von Kleist—a Radio Play (Hans Franck). **8.30,** The Brandenburg Concerto in G, No. 3 (J. S. Bach) by the Chamber Orchestra, conducted by Edwin Lindner. **9.10,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Concert from **Leipzig.** **11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**2.35 p.m.,** Brahms Concert: Sonata in A for Pianoforte and Violin, Op. 100; Hungarian Dances (Brahms-Joachim). **3.15,** Talk: The A.B.C. of Political Economy. **3.30,** Demonstration on the occasion of the First National Meeting of the German Christians' Movement, relayed from the Herrenhaus. **4.30,** Talk: The Development of Modern Shorthand. **4.50,** Talk for Young People. **5.10,** Concert of Light Music from the Café Moka-Efti. **5.30,** Reading of Short Stories. **5.55,** The Witzleben Station informs its Listeners. . . . **6.0,** Topical Talk. **6.10,** Talk: The World at the Turning Point—Theoretical and Political Map. **6.35,** Talk on Music. **6.45,** Announcement. **6.50,** Pianoforte Recital by Alfred Cortot, with the collaboration of the Berlin Philharmonic Orchestra, conducted by Engen Jochum: Pianoforte Concerto in A Minor, Op. 54 (Schumann). **7.25,** Second Symphony in D, Op. 73 (Brahms) by the Berlin Philharmonic Orchestra, conducted by Engen Jochum. **8.10,** A Night in a Lending Library—Programme arranged by Walter Gronostay. **9.10,** Weather, News and Sports Notes, followed by Dance Music from the Wilhelmshallen at the Zoo. **11.0** (also relayed by **Zeesen** on **31.38 metres**), Light and Shadow Pictures of Welfare Work in a City (arranged by Dr. Franz Kloidt).

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by F. Dyk: Overture, Masaniello (Auber); Ballet Suite from Namouna (Lalo); Selection from Dalibor (Smetana). **4.10,** See **Prague.** **4.50,** Light Music on Gramophone Records. **5.10,** Two Sonatas for Violin and Pianoforte (Dvorak). **5.55,** Talk on Housing. **6.0,** See **Prague.** **6.10,** Technical Talk. **6.25,** See **Brno.** **7.40,** Concerto in D Minor, Op. 69, for Flute and Pianoforte (Moligne). **8.0,** A Play (Roberto Bracco), translated by J. Borecky. **9.0,** See **Prague.** **9.5** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres. 12.10 p.m.,** Gramophone Concert of Variety Music. **12.45,** Time, Weather, News, Exchange and Shipping Report. **1.5,** Gramophone Concert of New Records: Selection from Frühlingsstürme (Weinberger); Tango, Nostalgia del deserto (Billi); Foxtrot from the Sound Film, Und es leuchtet die Puszta (Binder); Song from Gasparone (Millöcker); Tambourin chinois (Kreisler); Overture, Donna Diana (Reznicek); Military Marches. **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Market Prices. **2.40,** Book Review. **3.0,** See **Berlin (Königs Wusterhausen).** **3.25,** Concert by by the Silesian Symphony Orchestra, conducted by Gerhard Ewald Rischka. Soloist: Peter Hoenselaers (Baritone): Suite (Schumann); Veil Intermezzo, from Mona Lisa (Max von Schillings); Five Songs, (a) Am Brunnen vor dem Tore (Schubert), (b) Wohlauf noch getrunken den funkelnden Wein (Schumann), (c) In einem kühlen Grunde (Glück), (d) Morgen muss ich fort von hier (Silcher), (e) Folk Song, Ach wie ist's möglich dann; Serenade from Don Juan's Last Adventure (Graener); Waltz from Faust (Gounod); Four Songs, (a) Roseweis, Roserot (Jöde), (b) Folk Song, Steh ich in finst'rer Mitternacht, (c) Folk Song, Ich hab' mich ergeben, (d) Was ist des Deutschen Vaterland (Reichardt); Homage March (Liszt). **4.30,** Market Prices. **4.35,** Talk: The Heavens in April. **4.55,** Talk: Changes in Musical Taste during the Last Decade. **5.15,** English Lesson. **5.40,** Topical Programme. **6.0,** Talk: The Western Hemisphere and the Atlantic before the Days of Columbus. **6.30,** Weather and Market Prices. **6.35,** Concert by a Women's Choir. **7.30,** Mandoline and Guitar Concert: Raissaris March (Chartofila); Minuet (Wölki); Intermezzo (Oscheit); Concert Caprice (Arienzo); Barcarolle (A. Wagner); Suite, Ländliche Hochzeit (Ritter). **8.20,** News Bulletin. **8.30,** German Composers of the Baroque Period. Concert by the Station Orchestra, conducted by Ernst Prade. Soloists: Ludwig Hess (Baritone) and Kurt Hattwig (Harpsichord); Intrada (M. Franck); Schäfers Totenlied (Dedekind); Wandel der Zeit (Dedekind); Musette from Alcina (Händel); Love Songs (A. Krieger); (a) Ihr schönen Augen, (b) Schönste, wo denkst du hin; (c) Mein Leib ist weiss, (d) Soll denn mein junges Leben, (e) Wricht, ihr Gedanken, (f) Abendlied; Drinking Songs (A. Krieger): (a) Mir kann nichts, (b) Junggesellenfreuden; (c), Ihr Freunde! (d) Seht nur, wie der Rheinwein tanzt. **9.10,** Time, Weather, News, Sports Notes, Market Prices and Programme Announcements. **9.35,** Answers to Correspondents on Technical Questions. **9.50,** Reading: April, April (Kurt Scheerschmidt). **10.5** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**3.10 p.m.,** See **Bratislava.** **4.10,** Talk for Young People. **4.20,** Talk on American Authors. **4.40,** Chess Lesson. **5.0,** Review of Gymnastics and Sport. **5.15,** See **Prague.** **5.25,** German Transmission: News, Elementary French Lesson, and Reading. **6.0,** See **Prague.** **6.25,** Cabaret Programme. **7.25,** Scientific Talk. **7.40,** A Radio Play, with Music founded on the Life of Beethoven (Firkusny). **9.0,** See **Prague.** **9.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R.; 590 kc/s, 509 metres; 15 kW.—**11.0 a.m.,** Light Music on Gramophone Records. **12 Noon,** Le Journal Parlé. **12.10 p.m.,** Concert by the Little Station Orchestra, conducted by P. Leemans: March of the Dwarfs (Grieg); Valse scherzo (Tchaikovsky); Romance, Lune sur la mer (Douliez); Selection from The Merry Widow (Lehár); Castilla (Albéniz); Waltz, Poème (Fibich); Royal Serenade (Van Hereck); Fantasia (Cuvillier). **1.0,** Educational Programme. **4.0,** Dance Music from the St. Sauveur Palais de Danse. **5.0,** Talk: The Care of Teeth. **5.15,** 'Cello Recital by M. Gaillard: Second Suite from Pieces for 'Cello and Pianoforte in A (Couperin); Sonata in D for 'Cello and Pianoforte (Locatelli-Piatti). **5.45,** Monsieur Dupont's Funeral—Sketch (Lanville). **6.0,** Gramophone Records: Nocchi celesti (De Crescenzo), by Caruso; Nocturne No. 3 (Liszt); Fairer than the Lily from Dinorah (Meyerbeer), by Caruso; Entr'acte, The Hobby Horse (Pugni). **6.15,** Talk: Painting. **6.30,** Le Journal Parlé. **7.0,** Lara—Opera (Marsick), by the Grand Station Orchestra, conducted by Jean Kumps, and Soloists. In the interval at **7.15,** Reading of Poetry by Joachim du Bellay, Baudelaire, Comtesse de Noailles and Paul Géraldy. **9.0,** Le Journal Parlé. **9.10,** Gramophone Concert: Overture, La Princesse jaune (Saint-Saëns); Selection from The Arabian Nights (Joh. Strauss); Selection from Piccolino (Guiraud); Variations on 's kommt ein Vogel geflogen (Ochs); Romance, Op. 26 (Svendsen); Slav Rhapsody (Friedemann); Chorus from Mireilla (Gounod); Entry March of the Boyards (Halvorsen). **10.** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**11.0 a.m.,** Concert by the Small Orchestra, conducted by P. Leemans: Overture, The Merry Wives of Windsor (Nicolai); Scènes gitanes (Manuel Infante); Dolce memetto (Drdla); Selection from Samson and Delilah (Saint-Saëns); Violin Solo; Jota Navarra (Sarasate); Waltz, Sunshine of the Heart (Whidden-May); It is a Spanish Tango (Rotter-Yurman); Speakeasy (Gensler). **12 Noon,** Le Journal Parlé. **12.10 p.m.,** Russian Music on Gramophone Records: Prelude to Khovanstchina (Mussorgsky); Hindu Song from Sadko (Rimsky-Korsakov); Mushrooming (Mussorgsky); Melody from Prince Igor (Borodin); Song of the Volga Boatmen (arr. Chaliapine); Gopak from The Fair at Sorochinsk (Mussorgsky); Gavotte in D (Glazounov); Waltz from The Sleeping Beauty (Tchaikovsky); Polovtsian Dances (Borodin); Scherzo (Borodin); A Wedding Procession (Rimsky-Korsakov). **1.0,** Educational Programme. **4.0,** Concert by the Radio Orchestra, conducted by Charles Walpot: March; Overture, The Nuremberg Doll (Adam); Tales from the Vienna Woods (Joh. Strauss); Selection from Cocorico (Gaune); Romance for Violin (De Taye); In a Chinese Temple Garden (Ketelbey); Suite (Ackermans). **4.45,** Programme for Children. **5.30,** Concert by the Small Orchestra, conducted by P. Leemans: Dance (Leblanc); Cortège (Leblanc); Dans le parc au crépuscule (Laisné); Ombres sur le Nil (Schinelli); Violin Solo: Contemplation (Sayes); Selection from La Périchole (Offenbach); Pour endormir Pierrot (Canët); Poursuite amoureuse (Kalkman); Tarantelle, Capodimonte (Solazzi). **6.15,** Talk. **6.30,** Variety Item. **7.0,** Les Préludes (Liszt) on Gramophone Records. **7.15,** Talk: Youth and Politics. **7.30,** André Folleman Concert, relayed from the Salle Patria, Antwerp. The Composer ('Cello), Walter Weyler (Violin), and Jef Alpaerts (Pianoforte). Trio, Op. 1, No. 3 (Beethoven); Trio in E Flat (Schoemaker); Trio, Op. 66, No. 2 (Mendelssohn), followed by Le Journal Parlé. **9.15,** Gramophone Concert: Overture, Chal Romano (Ketelbey); Waiting at the End of the Road (Berlin); Cockney Suite (Ketelbey); The Kentucky Babe (Geibel); Jungle Drums (Ketelbey); Sing, you Sinners (Goslow-Harding). **10.0** (approx.), Close Down.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**3.0 p.m.,** Dance Music. In the interval at **4.0,** Radio Journal. **5.0,** Talk: Mathematical Science in Romania. **5.20,** Talk. **6.0,** Time Signal. **6.2,** Trio for Pianoforte, Violin and 'Cello, Op. 87 (Brahms). **6.20 to 6.45,** Song Recital by L. Schmidts: Popular Italian Songs; Corsican Funeral Songs—Vocero; Funeral Song—Lamento; Gondola Songs; Popular French Songs of the Sixteenth and Seventeeth Centuries: (a) Pavane, (b) Sarabande, (c) Le Roi a fait battre tambour. **7.5,** Quintet in E Flat Minor, Op. 26, No. 2 (Dohnanyi), by the Metzner Quartet and M. Filionesco (Pianoforte). **7.35,** Concert relayed from the Enesco Restaurant. **8.0,** Radio Journal.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW. Also relayed on **840 metres** from **5.40 to 11.0 p.m.—4.30 p.m.,** Pianoforte Recital by Lili Widner. **5.10,** German Lesson. **5.40,** Szekler Song Recital by Imre Molnár. **6.25,** Talk. **7.10,** Stravinsky Concert by the Philharmonic Orchestra, relayed from the Redoute, the Composer conducting. Soloist: Rosalinda Kaplan. **9.30,** Cigány Concert from the Café Patria, with Gyula Szántho (Hungarian Folk Songs). **10.20,** Jazz Music from the Café Patria.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by **Kalundborg, 260 kc/s, 1,153 metres.—11.0 a.m.,** Town Hall Chimes. **11.1 to 1.0 p.m.,** Concert from the Hotel d'Angleterre. **2.20,** Talk for the Housewife. **2.30,** Orchestral Concert, conducted by Fritz Mahler. **4.40,** Exchange and Market Prices. **4.50,** Talk. **5.20,** English Lesson. **5.50,** Weather

and News. 6.30, Concert of Sacred Songs for Choir and Organ, with Introductory Talk. 7.20, Pictures of Daily Life —The Production of a Sound Film. 7.50, Operetta Concert by the Radio Orchestra, conducted by Emil Reesen; Soloist, Julie Winding (Songs): Overture, The Mikado (Sullivan); Selection from The Drum-Major's Daughter (Offenbach); Overture, Les Brigands (Offenbach); Songs: (a) Yum-Yum's Song from The Mikado (Sullivan), (b) The Amorous Goldfish, from The Geisha (Jones); Selection from The Dubarry (Millöcker-Mackeben); Prelude to Eva (Lehár); Songs: (a) Vilja Song from The Merry Widow (Lehár), (b) Ich bin verliebt, from Schön ist die Welt (Lehár); Waltz from Die Faschingsfee (Kálmán); March from Sunny (Kern). 9.5, News Bulletin. 9.20, Old Danish Music by the Brüning-Bach Quartet: String Quartet in A Minor, Op. 23 (Louis Glass). 9.50, Dance Music from the Nimb Restaurant. In the interval at 11.0, Town Hall Chimes. 11.30 (approx.), Close Down.

CORK.—See **Athlone.**

CRACOW

950 kc/s, 312.8 metres; 1.5 kW.—**6.0 p.m.,** Talk on the National Physique. 6.15, Miscellaneous Items and Announcements. 6.30 to 10.0, See **Warsaw.** 10.0, Popular Music on Gramophone Records. 11.0, Fanfare from **Notre Dame.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11 a.m.,** Variety Music on Gramophone Records. 11.30, News Bulletin. 11.45, Radio Concert. 6.0 to 6.0, Programme in English by the I.B.C., C. Danvers Walker, B. McNabb and F. Lamping announcing. 5.0, Concert for Bognor Listeners: Waltz, The Blue Danube (Joh. Strauss); Song, Shepherd's Serenade; Waltz, Tales from the Vienna Woods (Joh. Strauss); Song, Charming; Londonderry Air; Air de Ballet (Herbert). 5.20, Concert for Hastings Listeners. Special Request Programme. Selection from The Maid of the Mountains (Fraser-Simson); With no Gloves in me 'and; He's dead but he won't lie down; Yodelling Mad; Trees. 5.40, Trio Concert for Eastbourne Listeners: Un peu d'amour (Silesu); Friend of mine (Sanderson); Chanson triste (Tchaikovsky); Love's Old Sweet Song (Molloy); Narcissus (Nevin); Cavatina (Raff). 6.0, Radio Gazette. 6.20, Local News and Popular Music on Gramophone Records. 6.45, News Bulletin. 7.30, Concert relayed from Caen. 10.0 p.m. till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: Love is the Sweetest Thing; Good Morning, Mr. Sun; I'll do my best to make you happy; The Voice in the Old Village Choir; Smile and Sing your Cares away; The Turning of the Tide; An Evening in Caroline; Day by Day; Where the Blue of the Night Meets the Gold of the Day; By the Sycamore Tree; Now that you're gone; Only me knows why; Blues in my Heart; Now's the Time to fall in Love. 11.0, Concert of Waltzes; Frühlingsstimmen (Strauss); Acclamations (Waldteufel); Morgenblätter (Strauss); Donauwellen (Ivanovici); O, Frühling wie bist du so schön (Lincke); Künstlerleben (Strauss); First Waltz Potpourri (Robrecht). 11.30, Sea Shanties: At Santa Barbara; Chorus; Blow the Man Down; Four Jolly Sailormen; The Drunken Sailor; Chorus; One More Day; Rio Grande; Chorus; A Dollar and a Half a Day; Quartet; Oh, Shenandoah. 12 Midnight, Club Concert for Billingham Listeners, Part I: Variety Music: With no Gloves in me 'and; Happy Days; A Music Hall Show in Grandpa's Day; Hawaiian Twilight; Three Blind Mice; Yodelling Sam; Will they love me up in Heaven. Part II: Songs: I wasn't ashamed of you, Mother; Take away the Moon; Honest, really, truly; Orchestra: On with the Show; Will they love me up in Heaven? You used to belong to me; Cuban Love Song. 1.0 a.m. (Tuesday), Accordion Solos: Selection from Carmen; C'est un petit Nid; J'aime la Musique; Potpourri of Welsh Airs; La Javanette; Les Bas à pointes. 1.30, Vocal Duets: A Dicky Bird told me so; I must be dreaming; Let's dream a little longer; Accordion Solo: Lorentina; In the Lane of Sweet Dreams; Sally of my Dreams; Why; Accordion Solo: Festival March. 2.0, Dance Music: Them there Eyes; There's something about an Old-fashioned Girl; Swingin' in a Hammock; Okay Baby; Beware of Love; What a perfect Night for Love; My Future just passed; Moonlight on the Colorado; Sous les toits de Paris; You are the Melody; Harmonica Harry; A little Love Song; Soldier on the Shelf; The Kiss Waltz. 2.57, I.B.C. Goodnight Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 1.7 kW.: **CASSEL, 1,220 kc/s, 245.9 metres;** and **TRIER, 1,157 kc/s, 259.3 metres.**—**5.10 p.m.,** Talk: Oliver Cromwell, Revolutionary and Parliamentarian. 5.35, English Lesson. 6.0, Time, Programme Announcements, Weather, and Exchange. 6.15, A German Almanac. 6.30, Radio Report from Frankfurt's Riverside Docks. 7.5, Tenth Monday Concert of the Frankfurt Orchestral Society by the Station Symphony Orchestra, conducted by Hans Rosbaud; Soloist, Edwin Fischer (Pianoforte): Beethoven Programme: Overture in C, Op. 124, Die Weihe des Hauses; Concerto in E Flat, Op. 73; Fifth Symphony in C Minor, Op. 67. 9.0, Time, News, Weather, and Sports Notes. 9.55, See **Stuttgart.** 11.0 (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse). **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**6.0 p.m.,** Talk: The Commercial Traveller. 6.25, Weather Report. 6.30, Brahms Concert, relayed from the Municipal Opera House, Hanover; The Opera House Orchestra, conducted by Prof. Rudolf Krasselt; Soloists: Elly Ney (Pianoforte), Else Schürhoff (Viola): Concerto in B Flat, Op. 83, No. 2, for Pianoforte and Orchestra; Rhapsody for Viola; Symphony in C Minor Op. 68, No. 1. In the interval, News. 8.30, Bruno Goetz reads from his own Works. 9.0, Time and News. 9.10, Topical Talk. 9.20, Concert relayed from the Café Wallhof. 10.25, Concert relayed from the Atlantik, Bremen.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—**12.5 p.m.,** Gramophone Concert. In the interval at 12.20, News. 2.0, Agricultural Prices and Exchange Rates. 2.30, An Easter Programme for Children. 3.0, Talk on the Centenary of Auerswald. 3.30, See **Breslau.** 4.30, Talk: The German Language. 4.45, Review of Children's Books. 5.15, Agricultural Prices. 5.25 (from **Danzig**), Talk by the Danzig Aviator, Gerhard Zirwas: A Flight over Germany. 5.50, Talk: Memorable Days of the Week. 6.0 (from **Danzig**), Brahms' Pianoforte Duets by Ella Mertins and Hugo Sonnik; Variations on a Theme by Schumann, Op. 23; Four Hungarian Dances: (a) No. 2 in D Minor, (b) No. 3 in F, (c) No. 5 in C Sharp Minor, (d) No. 6 in D flat. 6.30, English Lesson for Beginners. 7.0, News and Sports Notes. 7.10 (from **Danzig**), Bunter Abend, with Hans Lorenz, Mizzi Dressel, Kitty Aschenbach, and Paul Heidemann. 9.10, Weather, News, and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—Programme of the Workers' Radio Society (V.A.R.A.). **11.40 a.m.,** Concert by the Small V.A.R.A. Orchestra, conducted by P. Duchant. **1.40 to 2.10 p.m.,** Interval. 2.10, Light Music on Gramophone Records. 2.25, Recitations. 2.55, Popular Music on Gramophone Records. 3.25, Organ Recital by J. Jong: Eine kleine Nachtmusik (Mozart); Melody from Fra Diavolo (Auber); Spanish Dances (Moszkovsky); Potpourri (de Groot). 4.25, Programme for Children. 4.55, Variety Concert: M. Brantenaar (Violin); Mlle. Riek Hardonk (Songs); F. Pels (Oboe); B. Renden (Pianoforte); M. Vogel (Celeste) and Mlle. Greta van der Wal (Viola da Gamba). Sonate No. 1, for Oboe and Pianoforte (Händel). Three Songs (Alexys): (a) Légende bretonne; (b) Ma douce Annette; (c) Le semeur. Viola Solos (Schenk): (a) Prelude; (b) Minuet; (c) Rondo. Pianoforte Solo: Arioso with Variations (Bach). Violin Solos: (a) Sketches, Op. 59 No. 1 (Jongen); (b) Meditation, Op. 32 (Glazunov). Songs: (a) Sarabande (Stockhausen); (b) Bourrée (Vuillemoz); (c) L'amour de moi (Tiersot). Celeste Solos: (a) Caprice de Bonchette (Thone); (b) Cuban Serenade (Aletter); (c) Minuet, Grossmütterchen (Grieg). Oboe Solo: Fantasia (Spindler). Viola da Gamba Solos: (a) Arioso (Hellendaal); (b) Rondo (Hellendaal); (c) Andante (Hellendaal); (d) Minuet (Marais). Songs: Four Dutch Songs (Röntgen). Violin Solo: Romance in F (Beethoven). Pianoforte Solo: Moment musical (Schubert). Songs (Hirschberg): (a) Ratsellied; (b) Der Spielmann. Celeste Solo: Waltz (Vogal). Viola da Gamba Solo: Waltz (Craer). 6.40, Talk on Music, with Gramophone Illustrations. 7.40: Talk. 7.55, Ten Maids and no Man (Operetta) (Suppé). 8.55, News Bulletin. 9.10, Concert by the V.A.R.A. Orchestra, conducted by H. de Groot. 9.40, Dramatic Programme by the V.A.R.A. Toneel. 10.10, Concert by the V.A.R.A. Orchestra (contd.). 10.50, Light Music on Gramophone Records. 10.55, Organ Recital by C. Steyn. 11.25, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

60 kc/s, 1,875 metres; 8.5 kW.—**11.10 a.m.** till Close Down, Programme of the Christian Radio Society (N.C.R.V.). 11.10, Sacred Music on Gramophone Records. 11.40, Political Review. 11.55, Light Music on Gramophone Records. 12.10 p.m., Time Signal. 12.11, Organ Recital by Jan Zwart, relayed from a Church in Amsterdam: Concerto in G (Vivaldi-Bach); Psalms (Zwart); Concerto in C (Händel); Psalms (Zwart); Sonata in D (Mailly); Prayer and Berceuse (Guilmant); Grand Choral (Guilmant); Finale (Zwart). 1.40, Time Signal. 1.41, Concert by a School Choir at Rotterdam. 2.15, Gardening Talk. 2.55, Time Signal. 2.16, Dressmaking Lesson. 3.25, Programme to be announced. 3.40, Chimes. 3.41, Bible Reading and Sacred Music. 4.40, Chimes. 4.41, Concert by the Piet van den Hurk Quintet: Quartet in A (Mozart); Geisterreigen (Gluck); Variations on Reich mir die Hand (Beethoven); Gramophone Records (Beethoven): (a) Die Ehre Gottes in der Natur, (b) Die Himmel rühmen; Overture, Fra Diavolo (Auber); Waltz, España (Waldteufel); March (Cirro); Selection from Martha (Flotow); Schmetterlingsjagd (Keler-Béla). 6.10, Answers to Correspondence. In the interval at 6.55, Time Signal. 7.10, Political Review. 7.25, Press Review. 7.40, Time Signal. 7.41, Concert by the Little N.C.R.V. Orchestra, conducted by Piet v. d. Hurk; Soloists: Karine Maria Kwant (Soprano) and Bram Hemerik (Cello): Chorals from the St. John Passion (Bach); Cantata for Soprano, Two Violins and Pianoforte (Buxtehude); Concerto grosso, Op. 3, No. 5 (Geminiani); Symphony for Orchestra (de Groote); Three Chorals from the St. John Passion (Bach): Aria for Soprano and Flute, Ich folge dir gleichfalls mit freudigen Schritten (Bach); Prelude for Six Voices (M. Franck). 8.40, Talk. 9.10, Concert (contd.): Divertimento in D (Haydn): 'Cello Concerto (Monn); Overture, Semiramis (Rossini); Serenade (Widor); Berceuse de Jocelyn (Godard); Aubade Printanière (Lacombe); Scènes alsaciennes (Massenet). In the interval at 9.40, Press Review. 10.25, Light Music on Gramophone Records. 11.10 (approx.). Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**7.30 p.m.,** Radio Concert. 8.0, Weather and News. 8.15, Dramatic Programme. **11.0 to 12 Midnight,** Programme in English by the I.B.C. **12 Midnight** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**6.0 p.m.,** Talk: Amateur Photography. 6.15, Announcements and Gramophone Records. 6.25, Announcements. 6.30, See **Warsaw.** 7.0, Light Music. 7.15, See **Warsaw.** 10.0, Talk in Esperanto; Polish Pomerania and the Port of Gdynia. 10.15, Dance Music.

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—**7.30 p.m.,** Chamber Music Concert. 8.0, Talk: Auto Suggestion. 8.20, Popular Programme. 8.40, Sports Notes. 8.50, Concert. 9.30 (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—**6.30 p.m.,** Concert by the Radio Orchestra. 7.0, Play (Bernard Shaw) Translation by Topo Leistilä. 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert conducted by Eysoldt: Overture, Ilka (Doppler); Selection from Das Nachtlager in Granada (Kreutzer); Suite, Auf der Wanderschaft (Klughardt); Wiegenlied (Mannfred); Mazurka, Frauenherz (Strauss); Selection from Die Puppenfee (Bayer); Gavotte (Popper); Waltz, Zwei Herzen und doch nur eins (Richter); March, Jung Deutschland (Mannfred). In the interval at 1.0 p.m., News. 1.30, Market Prices. 2.30, Exchange and Time Signal. 3.20, Programme for Young People. 3.0, See **Berlin (Königs Wusterhausen).** 4.0, See **Munich.** 5.10, Talk: Let us be natural. 5.30, Reading: An Experience in the Tropics. 5.45, Weather, Time, Exchange, and Sports Notes. 6.0, Talk: Women's Cultural Work in the Saar District. 6.20, Topical Talk. 6.30, Talk: Air Traffic between Europe and South America. 6.55, First General News. 7.0, Programme to be announced. 7.15, The Queen's kerchief—Operetta in Three Acts (Joh. Strauss). 9.0, News and Sports Notes. 9.30, Serenade by the Little Münster Orchestra. 11.0 (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **DRESDEN, 941 kc/s, 319 metres.**—**12.15 p.m.,** Richard Strauss Concert on Gramophone Records: Selection from Der Rosenkavalier; Three Songs: (a) Cäcilie, (b) Zueignung, (c) Ich liebe dich; Suite from Le Bourgeois Gentilhomme. Exchange Quotations after the Concert. 1.0, Art and Film Report. 1.30, Talk for the Unemployed. 1.45, Eberhard König reads from his Novel, Theda von Wallmoden. 2.5, Agricultural Notes. 2.35, Exchange Rates. 3.0, Concert by the Dresden Philharmonic Orchestra, conducted by Hilmar Weber; Soloist, Adrian Rappoldi (Violin); Three Bagatelles for String Orchestra, Op. 88 (Hugo Kaun): (a) Liebeslied, (b) Mondnacht, (c) Minnet; Concerto in D Minor for Violin and Orchestra (N. W. Gade); Overture, Claudine von Villa Bella (Schubert); Contredanses (Beethoven); Orchestral Suite from Nussknacker und Mausekönig (Hans F. Schaub): Humoresque, Gaudeamus igitur (Liszt). 4.30, Chimes. 4.35, Weather and Time Signal. 4.50, Exchange Quotations. 5.0, Educational Talk: Too much Mathematics? 5.30, Talk: A Thousand Years of German Literature: The Counter-Reformation. 5.50, Programme to be announced. 6.0, Spring Pianoforte Recital by Erich Flinsch: Frühlingsglaube (Schubert-Liszt); Two Pieces from the Album for the Young, Op. 68 (Schumann); Spring Song from Songs without Words (Mendelssohn); Vorfrühling, Op. 33, No. 1 (Ludwig Thuille); An den Frühling (Grieg); Waltz, Frühlingsstimmen (Joh. Strauss). 6.30, Dialogue: The Flying Season begins. 7.0, Symphony Concert by the Leipzig Symphony Orchestra, conducted by Carl Schuricht: Concerto grosso in D for String Orchestra, Kettle drums, Trumpets, Wood Wind Instruments and Harpsichord (Stölzel); Symphony in D Minor, No. 9 (Anton Bruckner). 8.30, News Bulletin. 8.40, Reading from the works of Johann Peter Hebel. 9.15, News Bulletin. 9.30 (approx.), Concert by the Altenburg Theatre Orchestra, conducted by Heinz Drewes: Overture, The Merry Wives of Windsor (Nicolai); Aus alten Märchen (Wilhelm Kienzl); Waltz, Deutsche Herzen (Joh. Strauss); Selection from Madame Butterfly (Puccini); Suite after Watteau's Pictures (Carl Zimmer); Two Marches; Two Alsatian Peasant Dances (Merkling); Waltz, Traum verloren (Sigrid Translateur); Selection from The Maid of the Black Forest (Jessel). 11.0 (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW. **6.0 p.m.,** Serbo-Croatian Lesson. 6.30, Talk on Hygiene. 7.0, An Opera, relayed from **Belgrade, 697 kc/s, 430.4 metres.** 9.0, Time, News, and Light Music on Gramophone Records.

LWOW

788 kc/s, 381 metres; 16 kW. 6.30 p.m., See **Warsaw.** 7.0, Theatre Review. 7.1[illegible] See **Warsaw.** 9.45, Variety Music on Gramophone Records. 9.55, See Warsaw. 10.[illegible] (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**6.30 p.m.,** Radio Gazette for Lyons and the South-East. 7.30, Instrumental Concert of Music by Fauré, Mozart, St. Saëns and Liadov; Soloist; Mlle. Madeleine de la Valmalète (Pianoforte). After the Concert, News Bulletin.

MADRID

ARANJUEZ, EAQ, 30.43 metres, 9,860 kc/s, 20 kW.—**10.30 p.m.,** Concert of Light Music. 10.45, Radio Chronicle. 11.0, Concert (contd.). 11.35, Sports and Bull-fighting Notes. 11.40, Light Music. 12 Midnight (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.4 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, Sports Notes, and Request Gramophone Records. 8.15, News Bulletin. 8.30 (approx.), Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**3.10 p.m.,** See **Bratislava.** 4.10, Talk on Czech School in Austria. 4.20, See **Prague.** 4.50, Educational Talk. 5.0, Talk. 5.15, See **Prague.** 5.50, German Transmission: Two Talks. 6.[illegible] See **Prague.** 6.25, See **Brno.** 9.0, See **Prague.** 9.15 (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres,** and **Nürnberg, 1,256 kc/s, 239 metres.**—**11.0 a.m.,** Orchestral Concert, conducted by Erich Kloss. 12.15 p.m., Concert of Folk Music on Gramophone Records. 1.[illegible] Time, Weather, News, Announcements and Exchange. 1.20, Programme arranged by the Post Office, with Gramophone Records. 2.25, Andreas Weinberger reads from his Novel, Bergwerk. 2.50, Weather and Agr[illegible]

cultural Notes. 3.0, Baritone and Soprano Song Recital. Pianoforte Solos in the interval. 3.40, April Hints for Nature Lovers. 4.0, Concert by the Station Orchestra, conducted by Karl List: Overture, Eva (Lehár); Selection from Manon Lescaut (Puccini); Idyll for Small Orchestra, Biene Maja (Schröder); Emperor Waltz (Joh. Strauss); Intermezzo (Jhon); Overture, Susanna's Secret (Wolf-Ferrari); Selection from Boccaccio (Suppé); Peer Gynt's Homecoming (Grieg). 5.10, Talk: Social Problems. 5.30, Boys of the School-leaving Age. 5.55, Time, Weather and Agricultural Notes. 6.0, Talk: The Life of a German Settler in Canada. 6.20, Introductory Talk to the following Transmission. 6.35 (from **Augsberg**), Simone Boccanegra—Opera (Verdi), relayed from the Municipal Theatre. 9.20, Time, Weather, News and Sports Notes. 9.55, Serenade from **Stuttgart**. 11.0 (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredrikstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.—4.0 p.m.,** Concert by the Radio Ensemble: Overture (Fr. Rust); Waltz, Autumn Song (Joyce); Potpourri, bei Nacht (Lincke); Two Czech Polkas (Rudky); American Intermezzo (Reckhtenwald); Serenade No. 2 (Heykens); Japanese and Chinese Reveille (Durra); Liebesromanze (Schmalstich); Selection from Das Nachtlager in Granada (Kreutzer); March (Prekker). 5.0, German Lesson. 5.30, Viola and Pianoforte Recital by Hugo Kramm and Ivar Johnsen: Sonata in C Minor (Biber); Sonata in C (Honegger). 6.0, Announcements, Weather, and News. 6.30, Talk: Medicinal Plants and Superstition, relayed from **Bergen, 824 kc/s, 364 metres.** 7.0, Time Signal. 7.2, Light—Cantata (Winter Hjelm), relayed from **Trondheim, 605 kc/s, 495.8 metres.** 8.40, Weather and News. 9.0, Topical Talk. 9.15, Light Music.

OSTERSUND.—See **Stockholm.**

PALERMO

553 kc/s, 537.6 metres; 3 kW.—**7.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 7.20, Light Music on Gramophone Records. 7.30, Time Signal and Announcements. 8.0 (approx.) See **Turin.** After the Programme, Light Music on Gramophone Records. 9.55, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**), at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.,** Talk on the Theatre. 6.0, Le Journal Parlé. 7.20, Weather Forecast. 7.30, Messager Operetta Concert. The Orchestra conducted by E. Flament. Soloists: Henri Fabert, Reda Caire, Mlle. Nadia Dauty, Viorica and Simone Judic. Selection from (a) Passionnement, (b) L'Amour masqué, (c) Le Coup de roulis, (d) La Bearnaise, (e) Monsieur Beaucaire, (f) La Basoche, (g) La petite fonctionnaire. 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW. Transmits at intervals from **5.45 p.m.** Journal Parlé. 6.0, Hot Jazz on Gramophone Records. 6.30, Popular Music on Gramophone Records. 7.0, Medical Talk. 7.5, Talk on Aviation. 7.15, Interval. 7.30, Sponsored Concert. 8.40, Sponsored Concert. 9.40, News.

PARIS

RADIO PARIS, CFR, 174 kc/s, 1,725 metres; 75 kW.—**5.45 a.m.,** Physical Culture. 6.30, Weather and Physical Culture (contd.). 6.45, Selection from Les Erynnies (Massenet) on Gramophone Records. 11.0, Concert by the Radio Paris Orchestra. Overture, Waverley (Berlioz); Sextet from Lucia di Lammermoor (Donizetti); Siegmund's Love Song from The Valkyries (Wagner); Selection from A Life for the Tsar (Glinka); Piece (Erlanger). **12 Noon,** Exchange, News, and Weather. **12.5 p.m.,** Violin Recital by Mlle. Zadwiga Grabowska: Romance in G (Beethoven); Berceuse (Fauré); Mazurka (Zarzycko); Hungarian Dance (Brahms). 12.30, Exchange. 12.35, Orchestral Concert (contd.): Ballet Music from The Nutcracker Suite (Tchaikovsky). 1.0, Exchange. 2.45, Exchange and Market Prices. 5.10, Agricultural Talk. 5.30, Elementary English Lesson. 5.50, Film Review. 6.0, Review of New Books. 6.20, Concert by the Radio Paris Orchestra: Overture, Mam'zelle Trompette (Hirleman); Aubade (Monguet); A la française, à l'allemande, à la viennoise (Gedalge); Overture, Les deux vieilles gardes (Delibes). 6.45, Commercial Prices and News. 6.50, Gardening Talk. 7.0, The Barber of Seville—Opera (Rossini). In the intervals at 7.30, News, Weather, and Sports Notes, at 7.40, Review by Paul Reboux, and at 8.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC, KDKA, 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.—9.0 p.m.,** Work-a-day Thoughts. 9.5, Business News. 9.15, Ballroom Promenade. 9.30, Weather Report. 9.32, Market Report. 9.45, Blue Ridge Buddies. 9.57, David Lawrence Dispatch. 10.0, Programme to be Announced. 10.15, Dick Daring, from **New York.** 10.30, The Singing Lady, from **New York.** 10.45, Little Orphan Annie. 11.0, Booth Tarkington's Maude and Cousin Bill, from **New York.** 11.15, Time Signal. 11.16, Weather Report. 11.17, Teaberry Sport Review. 11.22, Press News Reeler. 11.29, Temperature Report. 11.30, KDKA Orchestra. **11.45 to 1.45 a.m. (Tuesday), New York** Relay. 11.45, To-day's News by Lowell Thomas. **12 Midnight,** Pepsodent Amos 'n' Andy. 12.15 **a.m.,** Tasty-east Jesters. 12.30, Five Star Theatre—Marx Brothers. 1.0, Cliquot Club Eskimos. 1.30, Time Signal and Don Carney—a Talk for Dog Lovers. 1.45, Programme to be Announced. 2.0 **to 3.30, New York** Relay. 2.0, Sinclair Minstrels. 2.30, Jack Frost Melody Moments. 3.0, Three Keys. 3.15, Vic and Sade. 3.30, Bridge School of the Air by E. Hall Downes. 3.45, Samuel di Primio (Tenor). 4.0, Time Signal. 4.1, Teaberry Sport Review. 4.11, Temperature Report. 4.12, Weather Report. 4.13, KDKA Artist Bulletin. 4.15, Press Last Minute News. 4.20, Smith Ballew and his Orchestra. 4.50, KDKA Artist Bulletin. 5.0, Hotel Bismarck Orchestra, from **New York.** 5.30, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**3.10 p.m.,** See **Bratislava.** 4.10, Talk: Passion Plays in Bohemia. 4.20, Educational Talk. 4.30, Programme for Children. 4.50, Variety Music on Gramophone Records. 5.5, Agricultural Report. 5.15, Talk for Workers. 5.25, News in German. 5.30, German Transmission. Talk: Economic Crises in the Roman Empire. 6.0, Chimes. 6.2, News. 6.10, English Lesson. 6.25, See **Brno.** In the interval at 8.0, Time Signal. 9.0, Time Signal. 9.1, News Bulletin. 9.15 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.—5.0 p.m.** (from **Lausanne**), Programme for Children. 5.30 (from **Lausanne**), German Lesson. 6.0 (from **Geneva**), Weather, News and Announcements. 6.30 (from **Lausanne**), Talk on Dentistry. 7.0 (from **Lausanne**), Musical and Dramatic Programme. The Lausanne Wireless Orchestra, conducted by Ed. Moser, the Lausanne Male Voice Choir, Mme. Pastori (Songs) and Members of the Radio Theatre. 9.0, News and Weather. 9.15 (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**6.5 p.m.,** Concert by a Wind Instrument Orchestra. 7.0, News Bulletin. 7.15, Janis Suchows Song Recital by Milda Brechman-Stengels (Soprano) and Adolfs Kaktins (Baritone). 8.0, Weather and News. 8.20, Concert of Russian Music: Finnish Sketches (Glazunov); Caucasian Sketches (Ippolitov-Ivanov); Torch Dance of the Brides of Kashmir (Rubinstein); Reverie (Scriabin); Andante cantabile (Tchaikovsky); Scene de danse (Glazunov). 9.30 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.—6.45 a.m.,** Gymnastics. 7.15 **to 7.30,** Giornale Radio and Announcements. 11.30, Weather and Light Music on Gramophone Records. 12 **Noon,** Time and Announcements. **12.5 to 1.15 p.m.,** Popular Music on Gramophone Records. In the interval at 12.30, Giornale Radio and Exchange Quotations. 3.0, See **Turin.** 3.45, Children's Radio Review. 4.10, Announcements. 4.15, Exchange and Giornale Radio. 4.30, Quarterly Concert, relayed from the Royal Philharmonic Academy. 6.0 (from **Naples**), Shipping and Sports Notes. 6.10, Agricultural Report and Dopolavoro Notes. 6.20, Giornale Radio. 7.0, Time, Announcements and Variety Music on Gramophone Records. 7.15, Soprano Song Recital, by Margherita Cossa: Three Songs (Pasquinin): (a) Con tranquillo riposo, (b) Filli, Filli (c) Giran pure in ciel le sfere. 7.30, Sports Notes and Tourist Report. 8.0, Orchestral Concert, conducted by Ugo Tansini. 9.0, Talk. 9.10 (approx.), Police Band Concert, conducted by Andrea Marchesini: Selection from Aroldo (Verdi); Santo Stefano (Pinna); Three Dances from Nell Gwynne (E. German); Melody (Mossolov); Slav March (Tchaikovsky). 9.55, News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres;** and by **W2XAD** on **19.56 metres.—7.30 p.m.,** The Revolving Stage, from **New York.** 8.0, Talk from **New York.** 9.15, Soloist from **New York. 12 Midnight,** Boy Scouts' Programme. 12.15 **a.m. (Tuesday),** Stock Reports. 12.30, Gold Medal Band. 12.35, Herbert Haight (Baritone). 12.45, The Goldbergs, from **New York.** 1.0, Sooonyland Sketches, from **New York.** 1.30, Voice of Firestone, from **New York.** 2.0, A. and P. Gipsies, from **New York.** 2.30, Buick Programme followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.—11.28 a.m.,** Time Signal from Neuchâtel Observatory. 11.30, Weather and News. 11.40 (from **Basle**), French Variety Music on Gramophone Records. 12.35 **p.m.,** Weather and Exchange. 12.45 **to 2.30,** Interval. 2.30 (from **Basle**), Variety Music on Gramophone Records. 3.30 (from **Basle**), Light Music on Gramophone Records. 4.30, Weather. 4.35 **to 5.30,** Interval. 5.30 (from **Berne**), Dr. Schuelmeister von Schwarzeburg—A Sequence of Stories (Fritz Bürki). 6.0, Time and Weather. 6.5 (from **Berne**), Gramophone Records (R. Strauss): (a) Till Eulenspiegel, (b) Till Eulenspiegel's Merry Pranks. 6.30 (from **Berne**), Talk on Eastern Music, illustrated with Gramophone Records. 7.15 (from **Berne**), Atlantis—Radio Play, after Benoit's L'Atlantide (arranged by Friedrich Bwand). 8.15, Weather and News. 8.30 (from **Berne**), Variety Programme: The Singing Babies, Hans Kolischers, the Miquette Orchestra, and Soloists. 9.35 (approx.) Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—4.5 p.m.,** Translation of a Student's Latin Exercise, relayed from **Malmö (1,301 kc/s, 231 metres).** 4.15, Accordion Music. 4.40, Dialogue in Danish. 5.0, Popular Music on Gramophone Records. 5.55, Parliamentary Report. 6.15, Weather and News. 6.30, Talk: The Development of Religion. 7.0 (from **Göteborg**), Finnish Folk Song Recital by Ulla Niska. 7.15, Microphone Report. 8.0, Concerto No. 2 in B Flat for Pianoforte and Orchestra (Brahms). 8.45, Weather and News. 9.0, Orchestral Concert: Overture, Il Guarany (Gomez); Potpourri of American Negro Spirituals (Fouls); Spanish Waltz, Estudiantina (Waldteufel); Blues (d'Albert); Melody (Niemann); Selection from Eugene Onegin (Tchaikovsky); Festival March, Knights of the King (Ketelbey). 10.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**10.30 a.m.,** Brahms Memorial Concert on Gramophone Records. 11.45, News. **12 Noon,** Time and Exchange. 12.5 **p.m.,** Light Music on Gramophone Records. 1.0 **to 3.45,** Interval. 3.45, Talk in German on Electricity. 4.0, Orchestral Concert, conducted by Roskam: March Intermezzo (Rust); Waltz, Over the Waves (Rosas-Pachernegg); Liebesromanze (Schmalstich); Overture, Si j'étais roi (Adam); Extase (Ganne); Selection from Madame Chrysanthème (Messager); Serenade (Moszkovsky); Oriental Suite (Popy); March (Sousa). 5.0, Literary Talk in French. 5.30, Orchestral Concert, conducted by Maurice de Villers: Marche de l'Emir (Luigini); Waltz, Flattergeister (Jos. Strauss); Overture, Medea (Cherubini); Selection from Madame Butterfly (Puccini); Orchestral Suite, Callirhoë (Chaminade); Humoresque (Dvorak); Selection from Passionnément (Messager); March, Le coq gaulois (Popy). 6.30, Time and News. 6.45, Light Music on Gramophone Records. 7.20, Lottery Results. 7.30, Concert by the Municipal Theatre Orchestra, relayed from Metz: Overture, The Barber of Seville (Rossini); Selection from Faust (Gounod); Plaisir d'amour (Martini); Selection from Martha (Flotow); Italian Ballet (de Bozi); Selection from Les vingt-huit jours de Clairette (Roger-Varney); Barcarolle from The Tales of Hoffmann (Offenbach); Selection from Tosca (Puccini); Royale valse (Paquot); Greek March (Ganne). 9.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **FREIBURG, 527 kc/s, 570 metres.—12.30 p.m.,** Concert from **Langenberg.** 1.0 **to 1.15,** Programme arranged by the Post Office, with Gramophone Records. 1.15 (from **Karlsruhe**), Programme arranged by the Post Office, with Gramophone Records. 1.30, Spanish Lesson. 2.0 **to 2.30,** Elementary English Lesson. 4.0, See **Munich.** 5.0, Time, Weather, and Market Prices. 5.10 (from **Freiburg**), Talk. 5.50 (approx.), See **Frankfurt.** 6.15 (approx.), Time, News, and Gramophone Records of Light Music. 6.30, The Special Constabulary—a Radio Report. 7.10, See **Heilsberg.** 9.10, Time, News, Weather and Programme Announcements. 9.30, Chess Lesson. 9.55, Programme by the Dance Ensemble of the Stuttgart Philharmonic Orchestra. Pfitzner Songs by Margarete Wetter (Soprano). 11.0 (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**6.30 p.m.,** Argentine Music. 6.45, Songs. 7.0, Viennese Music. 7.30, Arias from Operas: My Beloved Swan from Lohengrin (Wagner); Serenade from The Damnation of Faust (Berlioz); O Star of Eve from Tannhäuser (Wagner). 7.45, Violin Solos: Slav Dances (Kreisler); Tango (Albéniz); Chanson triste (Duparc). 7.45, Extracts from Tosca (Puccini). 8.15, Accordion Solos. 8.30, Orchestral Concert: Danza (Granados); Waltz, Pas de fleurs from Naïla (Delibes); Selection from Das Nachtlager in Granada (Kreutzer); Overture, Die schöne Galathée (Suppé); Piece (Oscheit). 9.0, Songs from Operettas. 9.15, North African News. 9.30, Concert for Listeners in Morocco. 10.0, Popular Concert. 10.30 **to 11.0,** Programme in English by the I.B.C., W. Brown-Constable announcing. 10.30, Dance Music: I'll never be the same again; I'm playing with Fire; As long as Love lives on; Here it is Monday; When anybody plays or sings; We'll always be Sweethearts; Every Woman thinks she wants to wander; One Hour with you. 10.57, I.B.C. Goodnight Melody. 11.0, Weather and Announcements. 11.5, Dance Music. 11.15, Songs from Sound Films. 11.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**6.50 p.m.,** Concert by the Caffè Dante Orchestra, followed by Programme from **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,095 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.—4.30 p.m.,** See **Rome.** 6.0, Time Signal. 6.1, Gramophone Records. 6.20, Giornale Radio. 6.45, Gramophone Records and Tourist Talk. 7.0, Time, Announcements, Giornale Radio, Weather and Gramophone Records. 7.45, Talk. 8.0, Sponsored Concert. 9.0, One-Act Comedy, followed by Variety Music on Gramophone Records. 10.0, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—**10.0 to 10.15 a.m.,** Religious Information in Italian. 7.0 **to 7.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.—4.15 p.m.,** Orchestral Concert: Melker Turnermarsch (Eber); Overture, Norma (Bellini); Waltz, Königskinder (Löhr); Intermezzo, The Wedding of the Dragonflies (Barrow); Indigo (Stefanides); Selection from Der Teufelsreiter (Kálmán); Slow Foxtrot, Nur die älteren Herrn (Loewe-Jascha); Slow Foxtrot, Kleine Mary, komm auf ein Glas Sherry! (Weiner-Dillmann); Pasoloble, Schöne Elena aus Cartagena (Harband). 5.20, Talk: Modern Italian Art. 5.40, Talk: Books and Works of Reference in Connection with the Week's Talks. 5.45, Talk: The Individual and Society among Primitive Races. 6.10, English Lesson. 6.35, Time, Weather, and Programme Announcements. 6.45, Dr. Anton Eiselsberg talks about his Surgical Experiences. 7.10, See **Heilsberg.** 9.10, News and Weather. 9.25, Dance Music by the Astoria Baud, relayed from the Café Westminster.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. 11.5, Programme Announcements. 11.10, Light Music on Gramophone Records. 12.20 **p.m.,** Weather Forecast. 12.25 **to 2.10,** Interval. 2.10, Announcements. 2.15, Economic Notes. 2.25, Road Report. 2.35, Answers to Correspondence. 2.50, Popular Music on Gramophone Records. 3.25, Elementary French Lesson. 3.40, Talk: World Economy. 4.0, Concert of Hungarian Music by Mme. Clara Dullien (Violin) and Tibor Rieger (Pianoforte); Three Pieces for Violin and Pianoforte (Rieger), with the Composer at the Pianoforte: (a) Rhapsody No. 1, (b) Rhapsody No. 5, (c) Rakoczy March; Pianoforte Solos: Music from a Hungarian Opera (Poldini); Violin Solos: (a) Adagio (Kodaly), (b) Ruralia Hungarica (Dohnanyi), (c) Dragonfly (Zsolt), (d) Zephyr (Hubay). In the interval, Announcements. 4.55, Programme Announcements. 5.0, Talk on History. 5.20, Talk on Current Events. 5.25, Light Orchestral Concert, relayed from the Cristal Restaurant. 6.0, Miscellaneous Items. 6.20, Agricultural Talk. 6.30, Topical Talk. 6.45, Radio Journal. 7.0, Technical Correspondence. 7.15, Night of Love—Operetta (Valentinov). 9.45, Dance Music. 9.55, Weather Forecast and Police Notes. 10.0, Dance Music.

ZURICH.—See **Schweizerischer Landessender.**

TUESDAY

APRIL THE FOURTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Programme of Sir Landon Ronald's compositions.
LONDON REGIONAL	"Ellan Vannin through the Ages," a Manx national programme, by M. Frost.
MIDLAND REGIONAL	Symphony concert.
NORTH REGIONAL	Orchestral programme of old-time dances.
WEST REGIONAL	Programme by old musical students of University College, Cardiff.
SCOTTISH REGIONAL	Entertainment presented by Jewish players. Hunting songs of the Gael.
BELFAST	Military Band concert.

ABROAD

BRUSSELS (No. 2)	7 p.m. The De Toekomst Orchestra, from Borgerhout.
BUDAPEST	6.30 p.m. Comic opera: "Le Chemineau" (Offenbach).
COPENHAGEN	7 p.m. Austrian concert, conducted by Fritz Mahler.
EIFFEL TOWER	7.30 p.m. Concert from the Conservatoire.
HAMBURG	9.30 p.m. Orchestral concert from Flensburg.
KONIGSWUSTERHAUSEN	7 p.m. Opera: "Elektra" (Richard Strauss), from Unter den Linden.
POSTE PARISIEN	7.30 p.m. Extract from operetta: "Ciboulette" (Hahn).
PRAGUE	6 p.m. Opera: "Tannhäuser," by Wagner.
STOCKHOLM	9 p.m. Johann Strauss concert.
STRASBOURG	5.30 p.m. Pianoforte recital by Jeanne Wolferstaedter.
TOULOUSE	8 p.m. Delmas concert.

ALGIERS

824 kc/s, 364 metres; 13 kW.—**7.0 p.m.,** Financial News. **7.10,** Shipping Notes. **7.15,** Weather Forecast and Agricultural Report. **7.20,** Songs from Brummel (Hahn). **7.35,** Musical Hall Sketch by Grock. **7.55,** News Bulletin. **8.0,** Time Signal. **8.2,** Talk: Motoring in the Sahara. **8.15,** Chamber Music: Concert Piece for 'Cello and Pianoforte (de la Presle); Soprano Solos: (a) Pourquoi rester seulette (Saint-Saëns), (b) Vieille Chanson (Bizet); Harp Solos: (a) Le Cygne (Saint-Saëns), (b) First Arabesque Debussy); Duet from Mlle. Nitouche (Hervé). **8.40,** News. **8.45,** Talk on Algiers. **9.0,** Concert of Oriental Music. **9.30,** News Bulletin. **9.35,** Concert (contd.). **9.55,** News. **10.0** (approx.), Close Down.

ATHLONE

725 kc/s, 413 metres; 1.2 kW.; and **CORK, 1,337 kc s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Popular Music on Gramophone Records. **7.10,** British Market Report. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** Talk on the Arran Islands. **8.0,** Italian and French Opera Music by the Station Orchestra. **8.30,** Songs from Italian Opera by John Lynskey (Baritone). **8.40,** French Opera Music by the Station Orchestra. **9.0,** Songs from French Opera by J. Lynskey. **9.10,** Pianoforte and Violin Recital by Miss McKenna and M. Malcolm. **9.40,** The Station Orchestra. **9.55,** Contralto Solos by Mabel Horne. **10.10,** The Station Orchestra. **10.30,** Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO BARCELONA; Call EAJ1; 860 kc s, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations and Art Notes. **8.0,** Popular Music on Gramophone Records, and News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, Messages to Seamen, Exchange Quotations, and Market Prices. **9.10,** Sponsored Programme. **9.30,** Juegos Malabares—Musical Comedy (Vives), followed by Las Bravias—Lyric Farce in One Act, after Shakespeare's Taming of the Shrew (Silva and Shaw), with Music by R. Chapi. **11.0** (in an interval), News. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc s, 269.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes, Tourist Report and Dopolavoro Notes. **7.20,** Giornale Radio and Weather. **7.30,** Time and Announcements. **7.35** (approx.), Orchestral and Choral Concert relayed from the Teatro Communale Piccini. Conductor: Biagio Grimaldi. Soloist: Donato Marrone (Pianoforte). The Transfiguration—Oratorio in Two Parts (Perosi) for Soloists, Choir, Orchestra and Organ; Fantasia, Op. 80, for Pianoforte, Choir and Orchestra. After the Concert, Light Music from the Grand Hotel Moderno. In the intervals, Literary Notes. **9.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.0 p.m.,** Light Music on Gramophone Records. **6.30,** Song Recital by Mme. Sophie Dransali. **7.0,** Concert by the Station Orchestra, relayed from **Zagreb, 977 kc s (307 metres). 9.0,** News Bulletin, followed by Light Music, relayed from the Ratnicki Dom Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert from **Berlin (Witzleben). 2.0,** Nature Study for Young People. **2.30,** Weather and Exchange. **2.45,** Reading: Der alte Turmhahn (Eduard Mörike). **3.0,** Talks for the Country Woman. **3.30,** See **Leipzig. 4.10,** Talk: Village Culture in the Middle Ages. **4.30,** Flute Recital: Sonata in D, Op. 6 (Beethoven, arr. Burchard); Duet for Pianoforte and Flute, Op. 10, No. 3 (Kuhlau). **5.0,** Talk: Individualism or Collectivism in Industry? **5.30,** Concert of Old Music by the Freiburg Chamber Trio: Pavane and Gaillarde; Die prünnlein, die da fliessen (Isaak); Pavane and Basse danse; Ei, du feiner Reiter (Scheidt); Seht doch, wie der Rheinwein tanzt (Krieger); Minuet (Telemann); Musette (Eighteenth Century); Aria, Der rechten Stimmung (Telemann); Quodlibet. **6.0,** Talk: The Military Training of Young People in France. **6.25,** A Poem. **6.30,** Talk on the 7.0 p.m. Transmission. **6.40,** Shorthand Test. **7.0,** Elektra—Opera in One Act (Richard Strauss), relayed from the State Opera House, Unter den Linden. **9.0,** Weather, News and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Concert from **Hamburg. 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.0 p.m.,** Topical Talk. **6.10,** Concert of Seldom-Heard Music, by the Berlin Wireless Choir and Walther Praetorius (Tenor). Commentary by Heinrich Burkard. **6.40,** See **Berlin (Konigs Wusterhausen). 6.58,** Announcements. **7.0,** Concert by the Berlin Wireless Orchestra, conducted by Bruno Seidler-Winkler. Overture, Jessonda (Spohr); Concertante Fugue for two Pianofortes and Orchestra; Variations on the Gipsy March from Weber's Preciosa (Mendelssohn); Italian Serenade (Hugo Wolf); Musik am Abend, Op. 44 (Paul Graener); Two Movements from the Fantasia; Aus Italien, Op. 16 (R. Strauss). **8.20,** Concert of Music from Unfinished Works, by the Berlin Wireless Orchestra, the Berlin Wireless Choir, Herbert Winkler-Lindberg (Baritone), Franz von Szpanowski (Violin), and Adolf Fritze (Cor anglais). Commentary by Heinrich Burkard. Aria and Chorus from the Oratorio Die Anrufung Neptuns (Haydn); Adagio for Cor anglais and Strings (Mozart); Ronde de Chasse (Mozart); Concerto in C for Violin and Orchestra (Beethoven); Songs for Baritone (Schumann): (a) Die nächtliche Heerschau, (b) Der Reiter und der Bodensee; Das Leben des heiligen Stanislaus Oratorio (Liszt); De profundis—Psalm for Baritone, Male Voice Choir, and Organ; Interlude for Orchestra. **9.5** (approx.), Weather, News and Sports Notes. **9.30,** See **Hamburg. 11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**3.10 p.m.,** See **Moravská-Ostrava. 4.10,** See **Prague. 4.20,** Russian Song Recital by Alzbeta Kraumerova. **4.50,** Talk on Politics. **5.5,** Concert of Light Music by the Station Band, conducted by K. Nagl. **5.35,** Slovak Lesson for Czechs. **5.50** till Close Down, See **Prague. 9.40** (approx.), Close Down.

BREMEN. See **Hamburg.**

BRESLAU

923 kc s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc s, 253 metres.—12.5, p.m.,** Weather Forecast. **12.10,** Marches from Sound Films on Gramophone Records. **12.45,** Time, Weather, News, and Exchange. **1.0,** Gramophone Concert. Overture, Der Opernball (Heilberger); Aria from The Merry Wives of Windsor (Nicolai); Caprice viennois (Kreisler); Overture, Orpheus in the Underworld (Offenbach); Ballet Music from The Bartered Bride (Smetana). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Market Prices. **2.40,** Programme for Children. **3.10,** Recital of Brahms Duets by Ella Lenz Pfeiffer (Contralto) and Gerhard Arlt (Baritone); Two Songs, Op. 91, for Contralto with Viola and Pianoforte Accompaniment: (a) Gestillte Sehnsucht, (b) Geistliches Wiegenlied; Four Duets for Contralto and Baritone, Op. 28: (a) Die Nonne und der Ritter, (b) Vor der Tür, (c) Es rauschelt das Wasser, (d) Dorfjäger und sein Liebchen; Four Songs for Baritone: (a) O wüsst ich doch den Weg zurück, (b) Die Mainacht, (c) Sonntag, (d) Sandmännchen; Two Songs for Contralto: (a) Feldeinsamkeit, (b) Botschaft. **4.10,** Book Review. **4.30,** Agricultural Prices. **4.35,** Paul Alverdes reads from his own Works. **5.5,** Topical Programme. **5.40,** Wireless Hints. **5.50,** Talk: The Atlantic and its Geopolitical Problems. **6.20,** Weather and Market Prices. **6.25,** Variety Music on Gramophone Records. **6.40,** See **Berlin (Konigs Wusterhausen). 7.0,** Concert of Ballads of Many Lands. **7.50,** News. **8.0,** Dances from Many Lands. Concert by the Station Orchestra, conducted by Franz Marszalek. German Dances (Schubert); Hungarian Dances, Nos. 5 and 6 (Brahms); Slav Dance (Dvorák); Styrian Dances (Lannet); Polonaise in A (Chopin); Espana (Chabrier); Scottish Dance (Beethoven); Bohemian Polka from Schwanda the Piper (Weinberger); Emperor Waltz (Joh. Strauss). **9.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **9.25,** Political Newspaper Review. **9.50,** Theatre Talk. **10.0,** Talk: From New York to San Francisco. **10.15,** See **Hamburg. 11.0** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**3.10 p.m.,** See **Moravská-Ostrava. 4.10,** Tales of our Grandmamma. **4.20,** See **Prague. 4.50,** Light Music on Gramophone Records. **5.0,** Music Review. **5.15,** Talk for Workers. **5.25,** German Transmission: News and Two Talks. **5.50** till Close Down, See **Prague. 9.40** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R.; 590 kc s, 509 metres; 15 kW.—**11.0 a.m.,** Massenet Concert, by the Little Station Orchestra, conducted by P. Leemans: Gavotte and Minuet from Manon; Si tu veux Mignonne; Ouvre tes yeux bleus; Selection from Cendrillon; Elegy for 'Cello; Angélus from Scènes alsaciennes; Selection from La Cigale; Clair de lune, from Werther; Finale from Les Erynnies. **12 Noon,** Le Journal Parlé. **12.10 p.m.,** Spanish Music on Gramophone Records: Iberia (Albeniz). **12.45,** Song Recital by Mme. Hendrick: D'une Prison (Hahn); Si mes vers avaient des ailes (Hahn); Vous aurez beau dire et beau faire (Fontenailles); Si l'amour est un songe (Lebrun). **12.45,** Spanish Music (contd.): Selection from Goyescas (Granados); Ronda aragonesa (Granados); Dances from La vida breve (Falla). **4.0,** Concert by the Radio Orchestra, conducted by Franz André: Suite, Joyous Youth (Coates); Rondo (Food); Third Suite (de Micheli). **4.30,** Programme for Children, arranged by the Belgian Catholic Radio Society. **5.5,** Literary Programme. **5.15,** Readings (Claudel). **5.30,** Concert of Sacred Music in Preparation for Easter, by the Choristers of the Mount Abbage du mont César at Louvain, conducted by the Reverend Father Kreps. **6.15,** Catholic Sport and Film Review. **6.30,** Le Journal Parlé. **7.0,** Concert by the Symphony Orchestra, conducted by Arthur Meulemans. Soloists: Marguerite Thys, Oscar Jouan (Tenor), and M. Lits (Baritone). Part I: L'Enfant Prodigue—Cantata (Debussy). **7.55,** Talk on the Crisis. **8.0,** Concert (contd.). Part II: French Opera Music: Prelude and Ballet Music from Carmen (Bizet); Flower Song from Carmen (Bizet); Suite from Philémon et Baucis (Gounod). **8.35,** Widor Concert; Selection from Conte d'Avril; Ballet Music from La Korrigane. **9.0,** Le Journal Parlé. **9.10,** Request Gramophone Records: Selection from Si j'étais roi (Adam); Selection from The Czarevitch (Lehár); Tout va bien (Bach and Laverne); Marche du dozième régiment de ligne (Dandenard); Ronde des lutins (Bazzini); Burlesque (Pond). **9.40,** Sonata No. 6 in G for Violin and Pianoforte. **9.55,** Christus Vincit (Liszt). **10.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 887 kc s, 338.2 metres; 15 kW.—Programme in Flemish. **11.0 a.m.,** Variety Music on Gramophone Records. **12 Noon,** Journal Parlé. **12.10 p.m.,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Jean de Paris (Boieldieu); Small Concert Suite (Coleridge-Taylor); Chanson italienne (De Taeye); Air from Louise (Charpentier); Gramophone Record, Serenade Schumann (R. Strauss), sung by Elizabeth Schumann; Selection from Wonder Bar (Katscher); Foxtrot for Violin, Raggin' the Fiddle (Gerrebos). **4.0,** Concert by the Symphony Orchestra. Conductor, M. Meulemans. Commemorative March (Gilson); Symphonic du printemps (Alpaerts); Spanish Fantasia (Gevaert); Bride Suite (Meulemans). **4.45,** Programme for Children. **5.30** Concert by the Small Station Orchestra, conducted by P. Leemans. Soloists: M. Adam (Clarinet) and M. Douliez (Pianoforte). Oriental March (Granados); Canzonetta for Clarinet (Pierné); Légende No. 8 (Dvorak); Gramophone Records by Lotte Lehmann: (a) Air (Jensseh), (b) Berceuse from Jocelyn (Godard); Romanian Dances for Pianoforte (Bredtschaun); Potpourri, Zoo singt Holland (Shuyter-Hoogenboom). **6.15,** Talk on how to observe Animals. **6.30,** Journal Parlé. **7.0,** Concert by the De Toekomst Orchestra, conducted by M. Rabusian, relayed from **Borgerhout:** Marche de cortège (Gilson); Selection from The Merry Wives of Windsor (Nicolai); Ballet Music from Faust (Gounod); Selection from The Mastersingers (Wagner). **8.0,** Talk. **9.0,** Journal Parlé. **9.10,** Die Fledermaus—Operetta (Joh. Strauss). Concert Version, on Gramophone Records. **10.0** (approx.), Close Down.

BUCHAREST

761 kc/s, 394 metres; 12 kW. **3.0 p.m.,** Light Music and Romanian Music by the Marsoi Orchestra. In the interval at **4.0,** Radio Journal. **5.0,** Talk: Romanian Engineers. **5.20,** Talks on Literature. **6.0,** Song Recital by Lydia Lipowska. **6.20,** Concert by the Station Orchestra. Soloist, Pupa Popovici (Pianoforte): Romanian Suite (L. Mendelssohn); Concerto for Pianoforte and Orchestra (Beethoven); Serenade for Strings (Wolf-Ferrari); Leonora Overture No. 3 (Beethoven). In the interval at **7.0,** Talk. **7.15,** Radio Journal. **8.0,** Talk in French: Art in Romania.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW. Also relayed on **840 metres** from **6.25 to 11.0 p.m.—4.30 p.m.,** Reading. **5.0,** Concert by the Guttenberg Jazz Band from the Café Ostende. **6.0,** French Lesson. **6.30,** Le Chemineau—Comic Opera in Three Acts (Offenbach), relayed from The Opera House. After the Opera, Gipsy Music relayed from the Hotel Dunapalota.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **KALUNDBORG, 260 kc s, 1,153 metres;** 1.5 kW.—**11.0 a.m.,** Town Hall Chimes. **11.2 to 1.0 p.m.,** Concert from the Bellevue Strandhotel. **2.0,** Recital of Scandinavian Songs by Georg Leicht. **2.20,** Concert from the Ritz Restaurant. **4.0 to 4.30,** Programme for Children; Gramophone Records of Operatic Music, with Talk. **4.40,** Exchange and Market Prices. **4.50,** Talk: Honey. **5.20,** German Lesson. **5.50,** Weather and News. **6.15,** Time Signal. **6.20,** Talk: Everyday Intellectual Problems—Personality. **7.0,** Town Hall Chimes. **7.1,** Austrian Evening—Concert by the Radio Orchestra, conducted by Fritz Mahler: Overture, Figaro (Mozart); Address by the Austrian Consul, F. Böhm; Symphony No. 5 in B flat (Schubert); Talk by Valeur Hauch-Fauchsöll: Austria as a Country for Tourists; Suite from the Music to Goethe's Triumph der Empfindsamkeit (Ernst Krenek). **8.30,** Poet and Shopkeeper—Comedy in One Act (Carl Gandrup). **9.10,** Jazz Songs on Gramophone Records. **9.25,** News Bulletin. **9.40,** Pianoforte Sonata in A Minor, Op. 5, No. 2 (J. P. E. Hartmann).

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11.0 a.m.,** Military Music. **11.30,** News. **11.45,** Botrel Concert. **5.0 to 6.0 p.m.,** Programme in English by the I.B.C., C. Danvers Walker, B. McNabb, and F. Lamping announcing. **5.0,** Song Recital for Torquay Listeners: The Lass with the Delicate Air; When the House is asleep; Gavotte for Octet, from Mignon (Thomas); Little Brown Owl; One Morning very early. **5.20,** Octet Concert for Plymouth Listeners: Ballet Music from Rosamund (Schubert); La fileuse (Raff); Londonderry Air; Waltz from Der Rosenkavalier (R. Strauss); Serenade; Valse caprice. **5.40,** Concert for Devonport Listeners. Military Band Music: The Middy March (Alford); A Merry Hunting Day; A Life on the Ocean (Binding); En Promenade; Colonel Bogey (Alford). **6.0,** Radio Gazette. **6.20,** News and Gramophone Records. **6.40,** Answers to Correspondence, and News. **7.15,** Talk. **8.0,** Concert relayed from **Le Havre. 10.0 p.m.** till Close Down, Programme in English by the I.B.C. **10.0,** Light Music: Back again to Happy-go-Lucky Days; Was that the Human Thing to Do?; Hot Coffee; She didn't say "Yes"; Good-night Vienna; Snap your Fingers; Five Minutes to Twelve; Snuggled on your Shoulder; Somebody Loves You; Masquerade; Majah General Thing-a-me-Bob; Auf Wiedersehn my Dear; Ooh! that Kiss; Good Evening. **11.0,** Hungarian Gipsy Music. Hungarian Medley (arr. Leggatt); Hungarian Dance No. 2 (Brahms); Violin Solo: Hejre Kati, from Scenes from the Czardas (Hubay); Hungarian Dances Nos. 6, 1 and 5 (Brahms); Hungarian Rhapsody No. 2 (Liszt). **11.30,** Vocal and Orchestral Concert. Songs: (a) To Mary, (b) Maire my Girl, (c) Passing By; Wedgwood Blue. Songs: (a) Down Vauxhall Way, (b) Beauty's Eyes, (c) Green Hills of Somerset. Orchestra: Sari Waltz. **12 Midnight,** Club Concert for Darlington Listeners. Part I: Variety Music: Would you like to take a Walk?; Corporal Hoskins; Don't send my boy to Prison; Oh! Zuyder Zee; Pianoforte Selection of Popular Tunes; Morocco; Good-night Sweetheart. **12.30 a.m. (Wednesday),** Concert. Part II: Songs: A Little Kiss each Morning (Woods); The Night was made for Love (Kern); I am the Words (de Sylva); Orchestral Interlude; Selection from White Horse Inn (Benatzky); Now I'm in Love (Yellen); A new Love is Old; (Harbach); Little White Lies (Donaldson). **1.0,** Banjo Solos: Medley of Popular Airs; Heather Bloom; The Buffoon; The Wedding of the Painted Doll; Duets: (a) Adeline, (b) Sweeping the Clouds Away; Riverside; Faust Medley. **1.30,** Vocal Duets and Saxophone Solos: Duets: (a) Old New England Moon, (b) Songs I heard at Mother's Knee, (c) Sing you Sinners; Saxophone Solos: (a) I need you more each Day, (b) Valse Marguerite; Duets: (a) Dancing with Tears in my Eyes, (b) Happy Feet, (c) If I had a Girl like you. **2.0,** Light Music: by the Fireside; Oh! Monah; The longer that you linger in Virginia; To-day I feel so Happy; Sunshine and Roses; Consolation; Oh what a Night; The Penguins' Patrol; Anchor's a-weigh; I still get a Thrill; I'd like to find the Guy that wrote the Stein song; That's where the South Begins; Hunting Tigers out in India; If I could be with You. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.: **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**5.25 p.m.,** Talk: The American Bank Crisis. **5.50,** Talk: Oliver Cromwell, Dictator and Protector. **6.15,** Time, Programme Announcements, Weather and Exchange. **6.20,** Sports Report. **6.40,** See **Berlin (Königs Wusterhausen). 7.0** till Close Down, See **Stuttgart.** In the interval at **9.0,** Time, News, Weather and Sports Notes.

FREDRIKSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**5.20 p.m.,** Johann Christoph Bach Concert, by the Hanover Station Orchestra. Dorothea Grelle (Contralto) and Otto Ebel von Sosen (Harpsichord). Allegro from a Septet; Minuet from the Sonata for Flute and Pianoforte. Contralto Solo; Schlummere sanft, from Die Kindheit Jesu; Rondo from a Septet. **6.5,** Frankfurt Exchange and Hamburg Egg Market Prices. **6.10,** Talk: Germany's Foreign Loans. **6.35,** Weather. **6.40,** See **Berlin (Königs Wusterhausen). 7.0,** Bunter Abend. The Station Choir and Orchestra, conducted by Fritz Gartz, and Soloists. Overture, Preciosa (Weber); Song from The Merry Wives of Windsor (Nicolai); Clog Dance from Czar and Carpenter (Lortzing); O schöne Jugendtage, from Der Evangelimann (Kienzl); Overture, Der lustige Krieg (Joh. Strauss); An des Rheines grünen Ufern (Gumbert); Waltzer from Der Schatzmeister (Ziehrer); Melody from The Chocolate Soldier (O. Straus); Selection from The Bayadere (Kalman); Liebeslieder-Walzer (Strauss-Gross); Overture, Der Bettelstudent (Millöcker); Part of the First Finale from The Gipsy Baron (Joh. Strauss); Stretta from Il Trovatore (Verdi). **8.30,** News. **8.40,** Katharina—Comedy in One Act (Fodor). **9.10,** Time and News. **9.20,** Topical Talk. **9.30** (from **Flensburg**), Orchestral Concert: Overture, Promethens (Beethoven); Nocturne No. 5 (Haydn-Geiringer); Symphony in B Flat No. 33 (Mozart); Violin Concerto (Mendelssohn); Haydn Variations (Brahms); Overture, Alfonso and Estrella (Schubert).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **DANZIG, 662 kc s, 453.2 metres; 12.5 p.m.,** Gramophone Concert: Minuet and Allegretto from the Quintet in E (Boccherini-Luigini); Rondo from the Quartet in G Minor, Op. 25 (Brahms); Two Songs from The Merry Wives of Windsor (Nicolai); Song from Il Trovatore (Verdi); Song from Czar and Carpenter (Lortzing); Overture, Banditenstreiche (Suppé); Walzer aus Wien (Bittner); Sous les ponts de Paris (Scotto); Waltz (Berger); Selection from Liselotte (Künnecke); Heut hab ich Glück (Knepler); Arme kleine Jeanne (Knepler); Selection from The Student Prince (Krausz); Vineta-Glocken (Lindsay-Theimer); The Skaters' Waltz (Waldteufel); Die ersten Blumen in Mai (Grothe). **12.20 p.m.** (in the interval), News. **1.30,** Programme arranged by the Post Office, with Gramophone Records. **2.0,** Agricultral Prices and Exchange Rates. **3.0,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken; Polonaise No. 2 (Liszt); Overture, Anne Boleyn (Donizetti); Serenade (Lalo); Barcarole (Tchaikovsky); Selection from Der Freischütz (Weber); Galanterie-Walzer (Leopold); Suite der Freude (Scheimpflug); Selection from Casanova (Strauss-Benatzky); Waltz (Waldteufel); Overture, Paragraph 3 (Suppé). **4.50,** Review of Periodicals. **5.15,** Agricultural Prices. **5.30,** Talk for Workers. **6.0,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Prinzessin Goldrausch (Rust); Liebesständchen (Wilcken); Liebeszauber (Zimmermann); Selection from Boccacio (Suppé); Waltz, Deutsche Grüsse (Jos. Strauss). **6.40,** See **Berlin (Königs Wusterhausen). 7.0,** Weather, News, and Sports Notes. **7.10,** Chamber Music. **8.10,** Friedrich Ludwig Zacharias-Werner—Incidents in the Life of a Genius (Martin Borrmann). **9.10,** Weather, News, and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.41 a.m.,** Concert by the Wireless Orchestra, conducted by Nico Treep. In the intervals, Light Music on Gramophone Records. **1.55 to 2.10 p.m.,** Interval. **2.10,** Variety Music on Gramophone Records. **2.40,** Dressmaking Lesson. **3.40,** Song Recital by Mlle. Stroink. **4.10,** Concert by a Children's Choir. **4.40,** Programme for Children. **5.10,** Talk arranged by the Liberal Protestant Radio Society (V.P.R.O.). **5.40,** Concert by the Wireless Orchestra, conducted by Nico Treep: Overture, Tancred (Rossini); Viennese Melody (Schrammel); Selection from The Bartered Bride (Smetana); A Fête in Aranjuez (Demersseman); Norwegian Dances, Nos. 1 and 2 (Grieg); Elegy (Ketelbey); Pagoda (Drdla); Le défilé de la garde (Gillet). **6.40,** An Electoral Address. **7.10,** English Lesson. **7.40,** Time Signal. **7.41,** News Bulletin. **7.45,** Light Music on Gramophone Records. **9.10,** Act III of Justice—Play (John Galsworthy). Translation by J. van de Horst. **9.55,** Concert of Light Music by Kovacs Lajos and his Orchestra, with Songs by Bob Scholte. **10.40,** News Bulletin. **10.50,** Popular Music on Gramophone Records. **10.55,** Light Orchestral Concert (contd.). **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.55 a.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). **11.55,** Concert of Light Music by the K.R.O. Boys, conducted by P. Lustenhouwer. Soloist, J. Mossel (Songs). **1.25 to 1.40,** Interval. **1.40,** Programme for Women. **2.40,** Song and Pianoforte Recital by Mme. van Eyndthoven-Bollen (Soprano), M. A. Smit (Baritone), and M. A. Ponten (Pianoforte). Arias from: (a) The Seasons (Haydn), (b) The Creation (Haydn); Recitative and Duet from The Creation (Haydn); Pianoforte Solo, Fantasia in D Minor (Mozart); Arioso (Händel); Duet from Theodora (Händel); Pianoforte Solo, Minuet (Debussy); Duet from Don Giovanni (Mozart); Duet from The Magic Flute (Mozart); Aria from Madame Butterfly (Puccini); Duet, Feinsliebchen, du sollst nicht barfuss gehn (Brahms). **3.40,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen: March, Fest und treu (Fucik); Overture, Hans Heiling (Marschner); Waltz, Over the Waves (Rosa-Pachernegg); Potpourri, Aus der Woche (Thiele); Gramophone Records: Overture, The Merrymakers (Coates); The Blue Pavilion (Armandola); Bülow March (Blon). **4.40,** Talk. **5.0,** Concert (contd.). Overture, The Crown Diamonds (Auber); Pestherwalzer (Lauger); An Evening in St. Petersburg (Meyer-Helmund); Sornettes (de Taye); Vénitienne (de Taye); March, Folies Bergère (Lincke). **5.40,** Concert by the K.R.O. Sextet. **6.10,** Esperanto Lesson. **6.30,** Sextet Concert (contd.). **6.50,** Talk. **7.10,** Police Notes. **7.25,** Talk. **7.40,** Concert of Sacred Music, relayed from the Cathedral at Roermond. **9.10,** News. **9.15,** Concert by a Vocal Ensemble. **10.10,** Light Music on Gramophone Records. **10.40,** News. **10.45,** Popular Music on Gramophone Records. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**7.35 p.m.,** Radio Concert. **8.0,** Weather and News. **8.15,** Radio Concert. **8.45,** Dance Music from the Palais de la Méditerranée. **11.0 to 12 Midnight,** Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**6.0 p.m.,** Literary Talk. **6.15,** Announcements and Popular Music on Gramophone Records. **6.25,** Sports Notes. **6.30,** See **Warsaw. 10.0,** Dance Music from the Astoria Café.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc s, 1,796 metres; 40 kW.; and **Helsinki, 815 k cs, 368.1 metres.**—**6.30 p.m.,** Concert by the Radio Orchestra, conducted by Toivo Haapanen. Soloist: Sylvi Nikula (Songs); Overture, Leonora No. 3 (Beethoven); Adagio from the Symphony in G (Haydn); Aria from Il re pastore (Mozart); Aria from Il Seraglio (Mozart); Ballet Music from Die Flöte von Sans-Souci (Graener); Coronation March from The Prophet (Meyerbeer). **7.45,** News in Finnish. **8.0,** News in Swedish.

LANGENBERG

635 kc s, 473 metres; 60 kW.—**12 Noon,** Orchestral Concert: Hoch-und Deutschmeister-Marsch (Ertl); Pesther-Walzer (Lanner); Overture, Raymond (Thomas); Lenz (Hildach); Rustle of Spring (Sinding); Selection from Tiefland (d'Albert); Chinese Rhapsody (Gabriel-Marie); Piedmontese Dance (Sinigaglia); Selection from The Geisha (Jones). In the interval at **1.0 p.m.,** News. **1.30,** Sponsored Programme with Gramophone Records. **2.30,** Economic Notes and Time. **2.50,** Programme for Children. **3.20,** Reading in Westphalian Dialect. **3.40,** Talk on Monte Carlo. **4.0,** Kurt Thomas Concert. The Composer (Pianoforte), Rudolf Metzmacher ('Cello) and Reinhard Fritzsche (Flute). Pianoforte Sonata in C, Op. 13; 'Cello Sonata in D Minor, Op. 7; Flute Sonata in A Minor, Op. 11; Six Two-part Inventions for Pianoforte, Op. 16a. **5.15,** Italian Lesson. **5.45,** Weather, Time, Economic Notes and Sports Results. **5.55,** Agricultural Talk. **6.15,** Book Review. **6.40,** See **Berlin (Königs Wusterhausen). 7.0,** News Bulletin. **7.5,** Concert by the Small Station Orchestra, conducted by Eysoldt. In the interval, German Folk Songs by the Station Chamber Choir, conducted by Zimmermann. **9.0,** News, Sports Notes and Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

796.9 kc/s, 389.6 metres; 120 kW; and **Dresden, 941 kc/s, 319 metres.**—**12 Noon,** News, Weather and Time Signal. **12.5** (approx.), Famous Conductors—Gramophone Concert. Exchange Quotations after the Concert. **1.0 to 1.15,** Talk for the Unemployed. **2.0,** Review of Books for Young People. **2.35,** Exchange Rates. **3.0,** Talk: What the Meadows tell us. **3.30,** Concert by the Wireless Orchestra, conducted by Willy Steffen; Overture and March from Tarandot (Weber); Traumspiel-Suite (E. N. von Reznicek); Waltz, Trifolien (Joh., Jos. and E. Strauss); Variations for Orchestra, Op. 42 (Rudolf Moser); Overture, Dame Kobold (Carl Reinecke). **4.30 to 4.35,** Weather and Time. **4.50,** Exchange. **5.5,** Talk for Women. **5.30,** French Lesson. **5.50,** Programme to be announced. **6.0,** Talk: Obedience or Self-determination. Concert of Schrammel Music by a Zither Trio: March, Drunter und Drüber; Ländler, Schwanthalhöh'er; Waltz, Der Weg zum Herzen; Bergfrühling; Potpourri, Ein Abend im Münchner Hofbräu; Intermezzo, Kirchweihtänze; Ländler, G'scherte; Waltz, An der schönen grünen Isar; Ländler, Aus geht's Buam; March, Die singende Zither. **6.40,** See **Berlin (Königs Wusterhausen). 7.0,** Variety Programme: Three Plays: (a) Roast Goose (Jo Hanns Rösler), (b) Herr Pirwitz buys a Violin (Albert Engelskamp), (c) The Wager (Georg Muehlen-Schulte). In the interval: Music by the Emdé Orchestra. In an interval at **8.0,** Economic Notes. **9.15,** News Bulletin. **9.30** (approx.), Seventh Century Music: Sequence (Walther Bergmann); Soloists: Hans Kunz (Baritone); Christian Klug (Gamba), and Friedbert Sammler (Harpsichord). **11.0** (approx.), Close Down.

LINZ.—See **Vienna.**

LWOW

788 kc/s, 381 metres; 16 kW.—**6.30 p.m.,** See **Warsaw. 9.30,** Popular Songs by Wilhelm Hilsenrath (Tenor). **9.45,** Light Music on Gramophone Records. **9.55,** See **Warsaw. 10.30** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW. —**6.30 p.m.,** Radio Gazette for Lyons and the South-East. **7.30,** Symphony Concert, relayed from **Paris.** After the Concert, News Bulletin.

MADRID

ARANJUEZ, EAQ, 9,860 kc/s, 30.43 metres; 20 kW.—**10.30 p.m.,** Concert of Modern Music.

MADRID

UNION RADIO, Call EAJ7, 707 kc s, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations and Request Gramophone Concert. **7.30** (in an interval), Talk by Joaquin España Cantos. **8.15,** News Bulletin and Political Review. **8.30 to 9.0,** Interval. **9.0,** Linguaphone English Lesson. **9.30,** Chimes, Time Signal, Political Review and Tosca—Opera (Puccini) on Gramophone Records. **11.45,** News Bulletin. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc s, 263.8 metres; 11 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by J. Plichta. **4.10,** See **Prague. 4.50,** Light Music on Gramophone Records. **5.0,** Talk on Gardening. **5.15,** See **Brno. 5.50,** See **Prague. 9.40** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres,** and **Nürnberg, 1,256 kc/s, 239 metres.**—**11.0 a.m.,** Concert of German Opera Music, by the Munich Chamber Orchestra, conducted by Fr. Rein. **12 Noon,** Violin and Pianoforte Recital by Marietta von Hann-Reiss and Karl Bergner. **12.15 p.m.,** Concert by Theo Eitele and his Schrammel Trio. **1.0,** Time, Weather, Announcements and Exchange. **1.20,** Programme arranged by the Post Office, with Gramophone Records. **2.0,** Gardening and Cookery Talks for Women. **2.50,** Weather and Agricultural Notes. **3.5,** Talk on Flanders. **3.25,** Liszt Pianoforte Recital by Gisela Göllerich. **3.45,** Programme for Children. **4.0,** Orchestral Concert, conducted by Erich Kloss. Festival Overture (Leutner); Concertante for Violin and Chamber Orchestra (Kusche); Selection from The Jewels of the Madonna (Wolf-Ferrari); Serenade and Slav Waltz (Schütt); Suite, Dances of the Nations (Manfred); Strauss Operetta Potpourri (Schlögel). **5.15,** Talk on Stenography. **5.35,** Talk: Intellectual Currents in History. **5.55,** Time, Weather and Agricultural Notes. **6.5,** Extracts from Frederica—Operetta (Lehár), by the Small Station Orchestra and Choir. Soloists: Lisl Ponhard (Soprano) and Gerd Niemar (Tenor). **6.40,** See **Berlin (Witzleben). 7.0,** Kurpfalz—a Musical Radio Sequence (Czibulka), with Music by the Station Orchestra and Choir. **8.5,** Astronomical Talk. **8.20,** Concert by the Station Chamber Orchestra and Choir, conducted by Karl List. Soloists: Margot Leander (Soprano) and Georg Grauert (Baritone). Radio Suite for Chamber Orchestra, Op. 48 (Cropp), conducted by the Composer; Folk Song; Suite on Old Palatine Airs, for Choir, Soloists and Orchestra (Kroiss); Sinfonietta in D (Fetsch). **9.20,** Time, Weather, News and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 920 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres,** and **Rjukan, 671 kc/s, 447.1 metres.**—**4.15 p.m.,** Soprano Song and Pianoforte Recital: Wiengenlied (Reger); Aria from Manon (Massenet); Song from Armide

(Gluck); Mit einer Primula Veris (Grieg); Aria from Lakmé (Delibes); Extracts from the Northern Suite (Johansen); Rigoletto Paraphrase (Liszt). **5.0,** Talk on the Teeth. **5.45,** Saxophone Recital by Jules de Vries: La Cinquantaine (Gabriel-Marie); At Dawning (Cadman); Habanera (Ravel); A Southern Sketch (Robinson). **6.0,** Announcements, Weather and News. **6.30,** English Lesson. **7.0,** Time Signal. **7.2,** Talk. **7.30,** Concert of Marches and Waltzes by the Station Orchestra, conducted by Hugo Kramm: Turkish March (Mozart); Waltz from Faust (Gounod); Entry March and Chorus from Tannhäuser (Wagner); Le Pas des fleurs from Naila (Delibes); Triumphal March from Aida (Verdi); Waltz (Sinding); Egyptian March (Joh. Strauss); Valse des fleurs (Waldteufel); March (Gumström); Destiny Waltz (Baynes); March Potpourri (Reektenwald). **8.40,** Weather and News. **9.0,** Topical Talk. **9.15,** Recitation. **9.45** (approx.), Close Down.

DSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW. **7.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes and Giornale Radio. **7.20,** Popular Music on Gramophone Records. **7.30,** Time Signal and Announcements. **7.45,** An Opera, relayed from a Theatre. In the intervals: Talk and Art Notes. **9.0,** Light Music on Gramophone Records. **9.55,** News Bulletin.

PARIS

EIFFEL TOWER, (FLE), 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals). **5.45 p.m.,** Talk on the Theatre. **6.0,** Le Journal Parlé. **7.20,** Weather Forecast. **7.30,** Concert, relayed from the Conservatoire. Soloists: Mlle. Jeanne-Marie Darré (Pianoforte); M. Singher (Songs), Mme. Marthe Collier (Songs), Mlles. Henriette Roget and Simone Petit (Pianoforte): Overture, Gretna Green (Guirand); Concerto No. 5 for Pianoforte and Orchestra (Saint-Saëns); Three Songs (Gounod): (a) Le Soir, (b) Venise, (c) Chanson de printemps; Ballet vénitien (Delvincourt), the Composer conducting; Songs (Busser); (a) La Colombe, (b) Les Nymphes de la Source; La Valse (Ravel), the Composer conducting; Symphonic Poem for Orchestra and Two Pianofortes, Printemps (Debussy).

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**5.45 p.m.,** Journal Parlé. **6.0,** Sponsored Concert with Gramophone Records. **7.0,** Film Review. **7.5,** Legal Talk. **7.15,** Interval. **7.30,** Extracts from Ciboulette—Operetta (Reynaldo Hahn). **9.30,** News.

PARIS

RADIO PARIS, CFR, 174 kc/s, 1,725 metres; 75 kW.—**5.45 a.m.,** Physical Culture. **6.30,** Weather and Physical Culture (contd.). **6.45,** Gramophone Records: Invitation to the Waltz (Weber); Romance (Schumann-Kreisler); Spring Song (Mendelssohn). **7.0,** Press Review and Weather. **11.0,** Concert by the Krettly Orchestra: Selection from Le Roi d'Yvetot (Adam); Selection from Mignon (Thomas); Overture, Light Cavalry (Suppé); Selection from Sappho (Massenet); Selection from La Princesse jaune (Saint-Saëns); First Suite from La Habanera (Laparra); Andante cantabile (Tchaikovsky); Solvieg's Song (Grieg); Spanish Dance (Sarasate); Piece (Coates). In the intervals at **12 Noon,** Exchange, News, and Weather, and at **12.30 p.m.,** Exchange. **1.0,** Exchange and News. **2.45,** Exchange and Market Prices. **3.30,** Elementary English Lesson. **5.10,** Agricultural Talk. **5.30,** Advanced English Lesson. **5.50,** Theatre Review. **6.5,** Talk on Art: Fakes. **6.20,** Concert by the Krettly Orchestra: Divertissement chez Madame (Cadou); Suite, Yzeil (Pierné); Prelude in G (Bigot); Quatre Pièces Berrichonnes (Steck). **6.45,** English Press Review. **7.0,** Variety Programme. **7.30,** News and Weather. **7.40,** Review by Pierre Seize. **7.45,** Chamber Music. Sonata (Steinert) by the Composer and Mme. de Casa Fuerte. Songs by Julié Nessy of Prague. **8.30,** Monsieur Bretonneau—Comedy (de Flers and Caillavet). In the interval at **8.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC, KDKA, 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres. 9.0 p.m.,** Work-a-day Thoughts. **9.5,** Business News. **9.15,** Selma Brandt (Pianist). **9.30,** Weather Report. **9.31,** Market Reports. **9.45,** Johnny Muskrat. **9.50,** David Lawrence Dispatch. **9.58,** Programme Announcements. **10.0,** Programme to be announced. **10.15,** Dick Daring, from **New York. 10.30,** The Singing Lady, from **New York. 10.45,** Little Orphan Annie. **11.0,** Booth Tarkington's Maude and Cousin Bill, from **New York. 11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30, KDKA Orchestra. 11.45 to 1.45 a.m. (Wednesday), New York** Relay. **11.45,** To-day's News by Lowell Thomas. **12 Midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m.** National Advisory Council on Radio in Education—The Lobby. **12.45,** The Townsend Murder Mystery. **1.0,** Eno Crime Club. **1.30,** Time Signal and Adventures in Health. **1.45,** Programme to be announced. **2.0 to 4.0, New York** Relay. **2.0,** Household Musical Memories. **2.30,** Willard Robison's Deep River Orchestra. **3.0,** The Tune Detective. **3.15,** Vic and Sade. **3.30,** Ramay Bailey and Orchestra. **3.45,** Prof. Jack McLallen, Sara and Sassafras. **4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.15,** Press Last Minute News Flashes. **4.20,** Smith Ballew and his Orchestra. **4.58,** KDKA Artist Bulletin. **5.0,** Cotton Club Orchestra, from **New York. 5.30,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

POZNAN

897 kc/s, 335 metres; 1.9 kW.—**6.10 a.m.,** Book Review. **6.28,** Time Signal. **6.30,** See **Warsaw. 7.0,** Military Band Concert. Soloists: Mme Zakowska-Krzyzanowska (Soprano) and M. Wesolowski (Mouth Organ). **8.30,** Musical Programme. In the intervals, Theatre Guide and Press Review from **Warsaw. 9.0,** See **Warsaw. 9.15,** Time, Sports and Police Notes. **9.30,** Dance Music from the Café Esplanade. **10.50** (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**3.10 p.m.,** See **Moravska-Ostrava. 4.10,** Talk on Economics. **4.20,** Czech Lesson for Germans and German Lesson for Czechs. **4.50,** Variety Music on Gramophone Records. **5.5,** Agricultural Report. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission: Modern Song Recital by Wally Horner. **5.50,** Talk on the following Transmission. **6.0,** Tannhäuser—Opera in Three Acts (Wagner). In the intervals, News, and at **8.0** and **9.0,** Time Signals. **9.40** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **LAUSANNE, 442 kc/s, 680 metres;** and **GENEVA, 395 kc/s, 760 metres.—5.0 p.m.,** (from **Lausanne**), Medical Talk. **5.30** (from **Genova**), English Lesson. **6.0** (from **Lausanne**), Weather, News and Announcements. **6.20** (from **Geneva**), Answers to Correspondence. **6.30** (from **Geneva**), Concert of New Gramophone Records. **7.0** (from **Geneva**), Literary Programme. **7.15** (from **Geneva**), Concert by the Geneva String Quartet. Assez vif et bien rythmé (Debussy); Allegro molto (Bela Bartok); Romance and Finale (Dvorák); Piece (Templeton Strong); Three Pieces for Quartet (Stravinsky). **8.0,** Concert by the Station Orchestra. **9.0,** News and Weather. **9.15** (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—**8.30 p.m.,** Weather Report. **8.40,** Musical Programme and Announcements. **9.0,** Chimes. **9.2,** News Bulletin. **9.30,** Reading. **10.0,** 'Cello Solos by Thorhallur Arnason. **10.15,** Recitations. **10.35,** Passacaglia in C Minor (Bach) on Gramophone Records.

RJUKAN.—See **Oslo.**

ROME

680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,810 kc/s, 25.4 metres.—6.45 a.m.,** Gymnastics. **7.15 to 7.30,** Giornale radio and Announcements. **11.30,** Weather and Light Music on Gramophone Records. **12 Noon,** Time and Announcements. **12.5 to 1.15 p.m.,** Orchestral Concert. In the interval at **12.30,** Giornale radio and Exchange. **3.45,** Programme for Children. **4.10,** Announcements. **4.15,** Exchange and Giornale radio. **4.30,** Orchestral Concert. **5.15 to 6.0,** Interval. **6.0** (from **Naples**), Shipping and Sports Notes. **6.10,** Atmospheric Signals. **6.20,** Giornale radio, Agricultural Report, and Dopolavoro Notes. **7.0,** Time and Announcements. **7.2,** Talk on the Comet. **7.15,** Soprano Song Recital by Maria Teresa Borboni. **7.30,** Sports Notes and Tourist Report. **7.45,** Relay from a Theatre or Concert from the Studio. In the interval, News. After the Programme, News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres;** and by **W2XAD** on **19.56 metres.—12 Midnight,** General Electric Programme. **12.15 a.m. (Wednesday),** Stock Reports. **12.30,** Gold Medal Band. **12.35,** Johnny Albright (Crooner). **12.45 to 4.0, New York** Relay. **12.45,** The Goldbergs. **1.0,** Blackstone Plantation. **1.30,** Wayne King's Orchestra. **2.0,** Ben Bernie's Blue Ribbon Orchestra. **2.30,** Ed Wynn and the Fire Chief Band. **3.0,** Lucky Strike Hour, followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres, 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres. 11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40** (from **Basle**), Popular Music on Gramophone Records. **12.35 p.m.,** Weather and Exchange. **12.45 to 2.30,** Interval. **2.30** (from **Basle**), Schubert and Schumann Song Recital on Gramophone Records. **3.0** (from **Basle**), Radio Quintet Concert of Russian Music. **4.0** (from **Basle**), Marches on Gramophone Records. **4.30 to 5.30,** Interval. **5.30** (from **Berne**), Programme for Young People. **6.0,** Time and Weather. **6.2** (from **Berne**), Notes on the Broadcasts for Schools. **6.15** (from **Berne**), Talk: International Law and the Vatican State. **6.45** (from **Berne**), A Florentine Tragedy, Opera (R. Flury), after the Story by Oscar Wilde. **7.25** (from **Berne**), Talk by Josef Reinhart. **7.30** (from **Berne**), Recital by a Male Voice Choir of the Songs of Karl Munzinger and Edmund Wyss. **7.40** (from **Berne**), Josef Reinhart reads from his own Works (in Dialect). **8.0** (from **Berne**), Cäsinir Meister Songs by a Male Voice Choir. **8.10** (from **Berne**), Pianoforte Duets by Helene Meister and Verena Gloor: Five Ländler from Lake Lucerne, Op. 47, Nos. 1, 2, 3, 9 and 10 (Huber). **8.20** (from **Berne**), Hans Huber Songs by the Solothurn Male Voice Choir. **8.30,** Weather and News. **8.40** (from **Berne**), Concert by the Solothurn Municipal Band, conducted by Stephan Jäggi. **9.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Horby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Osterstund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—4.5 p.m.,** Programme for Children. **4.45,** Popular Music on Gramophone Records. **5.45,** French Lesson, relayed from **Malmö, 1,301 kc/s, 231 metres. 6.15,** Weather and News. **6.30,** Provincial Programme from Gästrikland, relayed from **Gavle, 1,470 kc/s, 204 metres. 7.15,** Talk: The Religious Development of the Jews. **7.45,** Sonata No. 9 in A for Harpsichord (Mozart), by Ingrid Kjellström-Stenbeck. **8.10,** Song and Duet Recital by Karin and Nilse Juel. **8.45,** Weather and News. **9.0,** Johann Strauss Concert: Overture, The Gipsy Baron; Waltz, Künstlerleben; Wenns im Frühjahr blüht; Pizzicato Polka; Melody; Selection from Die Fledermaus. **10.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW. **10.30 a.m.,** Light Music on Gramophone Records. **11.0,** Orchestral Concert, conducted by H. de Villers; Soloists, M. Grégoire (Violin) and M. Payet (Horn): Part I: Overture, King Stephen (Beethoven); Ballet Music from Rosamunde (Schubert); Violin Solos: Prelude and Allegro (Pugnani-Kreisler); Orchestral Suite, Jeux d'enfants (Bizet); Torch March (Meyerbeer). **11.45,** News. **12 Noon,** Time and Exchange. **12.5 p.m.,** Orchestral Concert (contd.). Part II: Chabrier Music: Overture, Une éducation manquée; Concert Waltz, Scherzo, Larghetto, for Horn and Orchestra; Habanera; Rourrée fantasque; Fête Polonaise. **1.0 to 3.45,** Interval. **3.45,** Talk in French: The Sahara. **4.0,** Orchestral Concert of Jazz Music, conducted by M. Roskam. **5.0,** History Talk in French. **5.15,** Talk in French on Modern Poetry. **5.30,** Pianoforte Recital by Jeanne Wolferstaedter: Sonata in G (Mozart); Polonaise, Op. No. 1 (Chopin); Dresden China (Niemann); Suite Bergamasque (Debussy). **6.30,** Time and News. **6.45,** Gramophone Concert: Danse macabre (Saint-Saëns); Air from Parysatis (Saint-Saëns); Le Carnaval des Animaux (Saint-Saëns); Overture, The Flying Dutchman (Wagner). **7.20,** Lottery Results. **7.30,** Choral Concert, relayed from **Paris. 9.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres. 12.30 p.m.,** Concert from **Langenberg. 1.0,** Programme arranged by the Post Office, with Gramophone Records. **1.30 to 2.0,** Advanced English Lesson. **3.0,** Talk on Flowers. **3.30,** Talk for Women: Easter Preparations in the Family. **4.0,** See **Munich. 5.0,** Time, Weather and Agricultural Notes. **5.10** (from **Freiburg**), Talk: swindlers. **5.35,** Talk: Defective Goods. **6.0,** Time and News. **6.15** (from **Karlsruhe**), Zither Recital: March, Ein Hoch dem Jubilar (Vries); Ein Tag am Tegernsee (Höhne); Song, Frühlingszauber (Höhne); Concert Waltz, Lindauer Mad'ln (Stritzinger). **6.40,** See **Berlin (Königs Wusterhausen). 7.0,** Variety Programme on Gramophone Records. **7.45,** Concert of German Music by the Philharmonic Orchestra, conducted by Hans von Benda: Symphony in D Minor (Haydn); Bendas Klagen Cantata for Soprano, and Orchestra (Georg Benda); Medea Melodrama (Georg Benda). **9.0,** Time, News, Weather and Programme announcements. **9.20,** Programme by the Dance Ensemble of the Philharmonic Orchestra. Soloist: Walter Maurer (Tenor). **11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—**6.30 p.m.,** Songs from Opéra-Comique. **6.45,** Accordion Solos. **7.0,** Popular Songs. **7.15,** Viennese Music. **7.40,** Songs from Sound Films. **7.45,** Military Music. **8.0,** Delmas Concert by the Toulouse Symphony Orchestra, conducted by M. Tartaglia. Poem, An Pays Wallon; Prelude to Act II of Le Glaoui; Orchestral Suite, Orient Symphonie; Overture, Penthésilée; Light Music in the interval. **9.15,** North African News. **9.30,** Concert for Listeners in Morocco. **10.0,** Viennese Music. **10.30 to 11.0,** Programme in English by the I.B.C. W. Brown-Constable announcing. **10.30,** Choruses; Old Vienna Moon; The Desert Song; The Blue Danube; Bitter Sweet; Voices of Spring; You will remember Vienna. **10.57,** I.B.C. Good-night Melody. **11.0,** Weather and Announcements. **11.5,** Popular Songs. **11.15,** Orchestral Music. Selection from Stradella (Flotow); Pavane pour une Infante défunte (Ravel). **11.50** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**4.30 p.m.,** Till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 899 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.—4.30 p.m.,** Dance Music from the Select Savoia Dancing. **5.15 to 5.35,** Interval. **5.35,** Giornale radio, Agricultural Report, and Dopolavoro Announcements. **6.0,** Time Signal. **6.1,** Gramophone Records. **6.20,** Giornale radio. **6.45,** Report of the Royal Geographical Society, and Gramophone Records. **7.0,** Time, Announcements, Giornale radio, Weather, and Gramophone Records. **8.0,** Variety Programme. **9.0,** Talk. **9.15,** Dance Music. **10.0,** Giornale radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,969 kc/s, 50.25 metres (Evening);** 10 kW.—**10.0 to 10.15 a.m.,** Religious Information in English. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.—4.50 p.m.,** Orchestral Concert: Overture, A Waltz Dream (O. Straus); Waltz, Aus alter Zeit (Lederer); Selection from Die Landstreicher (Ziehrer); Autumn Leaves (Scarsda); Intermezzo d'Arlequin (Bastin); March, Farewell of the Gladiators (Blankenburg). **4.45,** Agricultural Talk. **5.10,** French Lesson. **5.35,** A Visit to the Experimental Department of the Technical Museum. **6.0,** Time, Weather and Programme Announcements. **6.25,** Relay from the Opera House. In the interval at **8.30** (approx.), News. **9.5,** Announcements. **9.10,** Concert of Songs and Instrumental Music, relayed from the Hotel Krantz Ambassador.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Popular Music on Gramophone Records. **12.20,** Weather Forecast. **12.25 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.25,** Aviation Report and Anti-Gas Drill. **2.30,** Announcements. **2.35,** Book Reviews. **2.50,** Popular Music on Gramophone Records. **3.20,** Talk: Italian Politics. **3.40,** Talk: The Beauty of the Romanian Race. **4.0,** Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by Launy Grömdala. In the interval, Announcements. **4.55,** Programme Announcements. **5.0,** Literary Talk on Wyspiansky. **5.20,** Talk on Current Events. **5.25,** Light Music, relayed from the Café Gastronomia. **6.0,** Miscellaneous Items. **6.20,** Agricultural Talk. **6.30,** Talk on Music. **6.45,** Radio Journal. **7.0,** Concert by the Station Orchestra, conducted by F. Ozminski, with Pianoforte Duets by G. Lefebl and E. Urstein. Overture, Halka (Moniuszko); Ballet Music (Moniuszko); Clarinet Solo; Waltz in C Sharp Minor (Chopin-Cielewicz); Pianoforte Duets (Zarebski): (a) Reverie, (b) Cracovienne, (c) Dance; Selection from Die toten Augen d'Albert; Andante from the Quartet in E Flat Minor (Tchaikovsky); Valse triste (Nedbal); Pianoforte Duets: (a) Legend (Dvorak), (b) Two Slav Dances (Dvorak), (c) Cortège (Moszkovsky); Ballet Music from Hamlet (Thomas). In the interval, Sports Notes and Radio Journal. **8.45,** Recitations. **9.0,** Song Recital by Mme. Elsa Brems. **9.30,** Dance Music. **9.55,** Aviation Weather Forecast and Police Notes. **10.0,** Dance Music.

ZURICH.—See **Schweizerischer Landessender.**

Foreign programmes continued on page XIII.

PROGRAMMES CONTINUED

GOOD FOR MONTHS YET!

The countless thousands of users of Pertrix Batteries are delighted with their wonderful return for money spent. Month after month Pertrix H.T. Batteries continue to give that generous output of steady current so vital to the true tonal rendering of speech and music. The results are certainly amazing—yet the reasons are not far to seek. Pertrix Batteries are constructed of entirely different materials from those used for all other batteries. Pertrix zincs do not corrode, because there is no sal-ammoniac; this means no deterioration when the battery is out of use. Pertrix have immense recuperative powers—steadily and constantly through the hours when they are inactive they build up their power for the next day's radio. Fit Pertrix next time—they give service until the last ounce of power is out!

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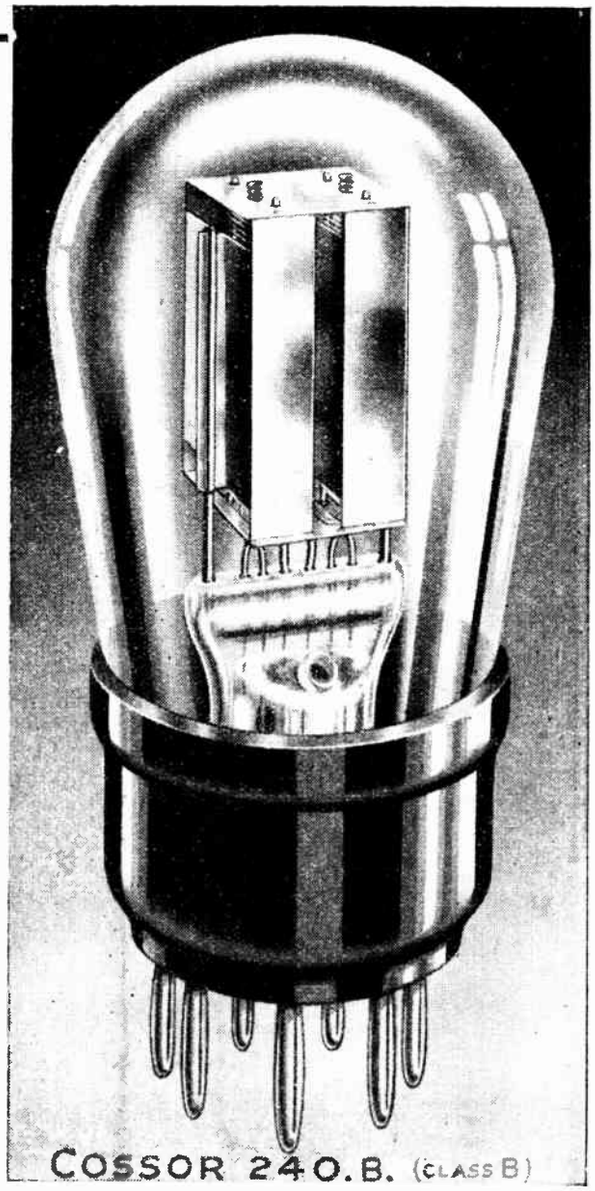

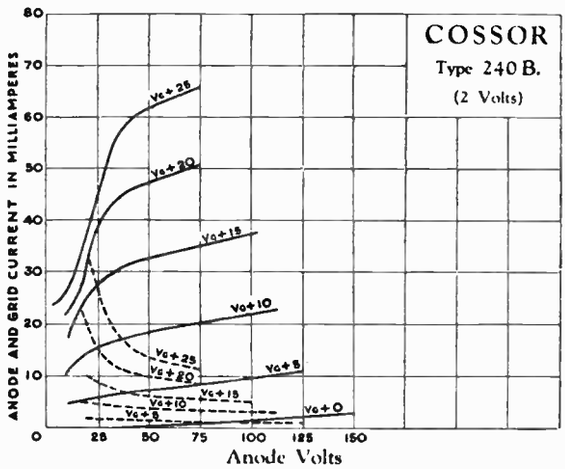

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2623

The Wireless World

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As many of the circuits and apparatus described in these pages are covered by patents, readers are advised, before making use of them, to satisfy themselves that they would not be infringing patents.

CONTENTS

	Page
PROGRAMMES FROM ABROAD, pp.I—XXIV	
Editorial Comment	233
Fit A.V.C. to Your Receiver	234
The History of A.V.C.	236
Unbiased	238
Practical Class "B" Amplification	239
Practical Hints and Tips	241
News of the Week	242
The Magnetic Circuit	243
Broadcast Brevities	245
Bush Q.P.P. Battery Receiver	246
Laboratory Tests	248

EDITORIAL COMMENT

A Unit for A.V.C.

A Simple Addition to Your Set

WE have from time to time during recent months stressed the importance of automatic volume control, and have expressed the view that next season any receiver for which the claim is made that it is suitable for the reception of foreign stations, will find a poor market if automatic volume control is not incorporated; but we need not wait for next season to try out automatic volume control, even if we are not ready to make a new set at the moment, for in this issue we give the first design for a practical A.V.C. unit, which can be added externally to practically any type of receiver suitable for distant reception.

When new valves suitable for incorporating in new receiver designs where A.V.C. becomes an integral part of the set are available, we hope to be able to show their application in complete constructional receivers, but until this unit was produced there was nothing available with which to demonstrate automatic volume control without making some drastic alterations to an existing set.

The information given in the article makes it abundantly clear how effective this little unit is in performing the job of overcoming fading of distant stations, and, in addition, preventing the burst of strength from local stations as we tune through them.

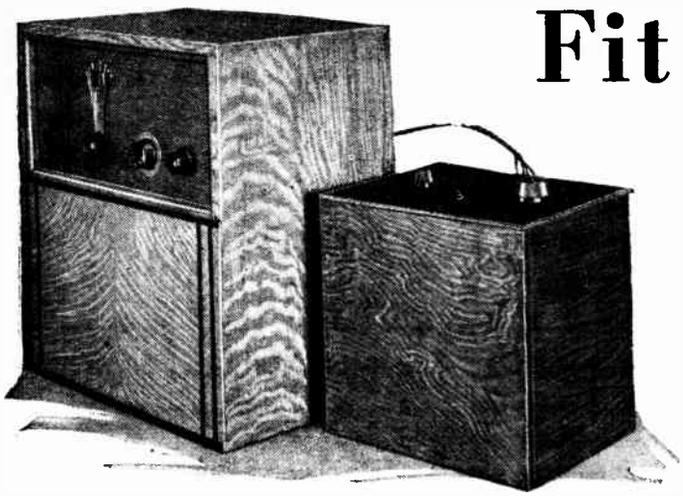
Whilst the popularity of foreign listening has steadily increased with improvements in the selectivity and sensitivity of sets, coupled with the progress made in the foreign transmitting stations themselves, A.V.C. goes one better and lifts foreign reception on to practically the same plane as local-station listening, and all that is required is that the distant stations should not be so extremely weak as to result in distortion during the worst periods of fading. We particularly commend to our readers the A.V.C. unit described in this issue; it costs very little to construct and probably, in many cases, most of the essential components will already be available in the "spare parts" box.

Wireless and the Car

Will Built-in Sets be Popular?

A VERY interesting article appeared in *The Autocar* of March 17th, discussing the advent of wireless in cars, particularly in cases where the set is a built-in accessory. *The Autocar* emphasises the fact that although in America and Canada built-in wireless sets fitted to cars have achieved great popularity, no British manufacturer has, as yet, produced any evidence of interest in meeting the possible demand for such sets here. It is pertinent to enquire whether British manufacturers ought not to have got down to this question themselves, rather than permit whatever market there may be for this apparatus to be met from abroad.

Our own view on the design of a receiver for car use would be that the car should be fitted with the necessary apparatus to provide the electric supply at standard voltages for a transportable set, which could then be used either in the car or in the home. To fit up a set so that it is not capable of being detached from the car for use elsewhere makes car wireless a luxury which is out of the reach of the majority of motorists. Incidentally, permanent fixing makes it necessary to have a broadcast licence specially for the set, whereas a separate licence is not necessary for a portable set used with a car.



Fit A.V.C. to your Receiver

A Simple Additional Unit

AN effective "monitoring" device which, without any attention, will automatically maintain the receiver in whatever state of sensitivity is necessary for dealing with signals of widely varying strength.

By H. F. SMITH

ALTHOUGH automatic volume control is thought to be mainly applicable to super-sensitive sets, and especially to superheterodynes, much less ambitious receivers stand to derive benefit from its use. Sets which depend largely on reaction for their sensitivity are notoriously susceptible to the ill effects of fading; with the help of A.V.C. they may be operated with reaction fully advanced, and with the assurance that distressing overloading will not take place when signal strength rises to maximum. Distant transmissions may then be enjoyed without constant readjustment.

The present unit is intended to work with almost any set of the "straight" or superhet type having one or more stages of H.F. or I.F. amplification. It is also necessary that a resistance of 10,000 ohms or more should be included in the detector anode circuit. This means that the unit is suitable if the existing detector is coupled to the L.F. amplifier by a resistance, a resistance-fed transformer, or where there is an anode decoupling resistance of fairly high value.

The problem of designing a unit for use with a variety of existing sets is vastly different from that of evolving a control to be included as an integral part of one particular receiver. Methods which need a connection to the grid of one of the receiver valves are to be avoided for various reasons, and so the system in which D.C. voltage changes on the anode of the detector are made to operate the control valve has been chosen.

This system is by no means new; in fact, it was one of the first to be devised[1]; rearranged to suit modern conditions, it has proved to be entirely satisfactory.

Referring to Fig. 1, it will be appreciated that when a carrier wave is rectified detector anode current falls, and so the point marked X becomes more positive with respect to the earth line, due to the reduced voltage drop in R1.

Now consider the action of the A.V.C. valve. The bias battery GB, of which the voltage may be adjusted roughly by tappings and critically by the potentiometer R3, is interposed in order to balance out the positive voltage which would otherwise be applied from the source of H.T. to the A.V.C. grid. In addition, a little extra negative voltage is needed in order to stop entirely the flow of anode current in the valve under "no-signal" conditions. When a carrier is tuned in, the A.V.C. grid becomes less negative, and so anode current flows through the resistance R4, across which a controlling bias voltage, dependent on signal strength, is developed. Thus, until equilibrium is reached, we have a state of "push-pull." Detector anode current is tending to fall, but the signal voltage which gives rise to this fall is prevented from rising by the desensitising effect of the A.V.C. The resistance R2 is a safety device, and prevents instability.

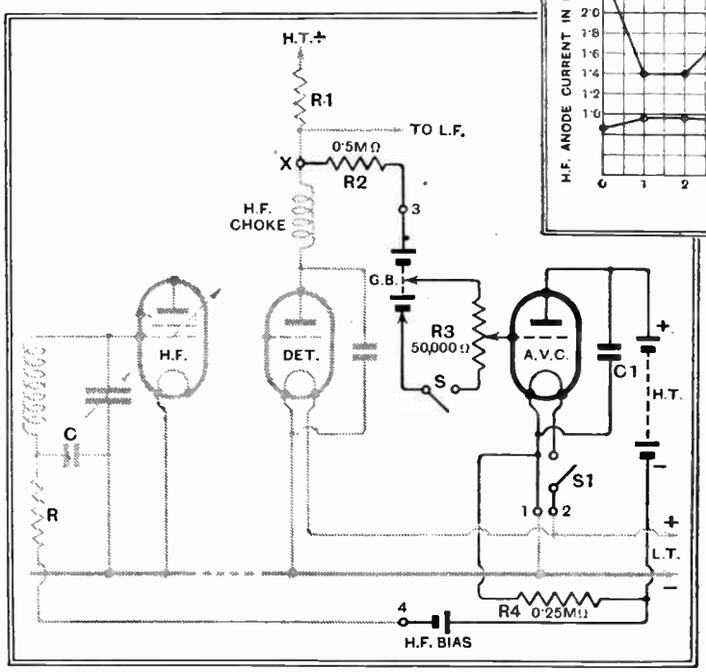


Fig. 1.—Circuit diagram of the unit (in full lines). Connections to a typical receiver are shown. Numbered points refer to the terminal block through which connections between receiver and unit are made. Switches S and S1 are linked.

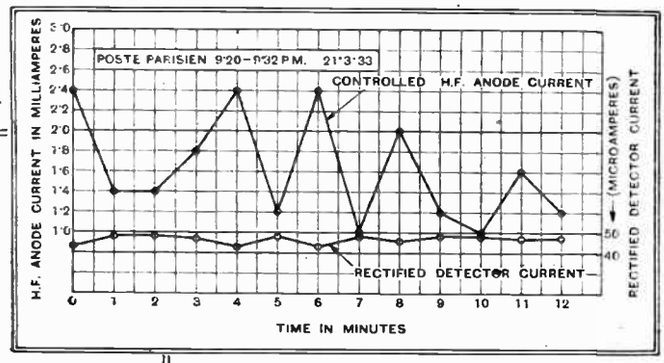

POSTE PARISIEN 9·20–9·32 P.M. 21·3·33
CONTROLLED H.F. ANODE CURRENT
RECTIFIED DETECTOR CURRENT
H.F. ANODE CURRENT IN MILLIAMPERES
RECTIFIED DETECTOR CURRENT (MICROAMPERES)
TIME IN MINUTES

Fig. 2.—How the A.V.C. unit compensates for minute-to-minute fluctuations in signal strength. This graph, taken under practical conditions with a simple I-v-I receiver, shows that detector output was maintained at a sensibly constant level except when signals faded below threshold strength.

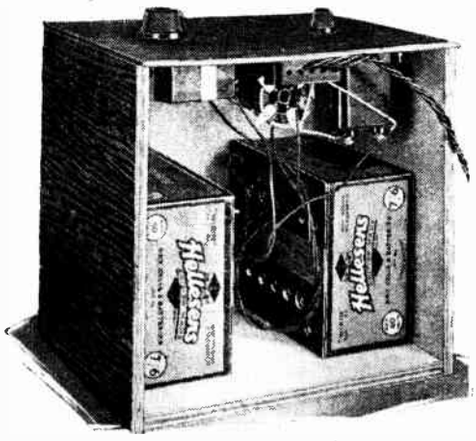
The unit, complete with its batteries, may be mounted in a simple wooden box (that illustrated measures 9in. wide, 7½in. deep and 9in. high). Having assembled the parts, it must be decided which valves are to be controlled. In a 1-H.F. set there is no choice, but with two H.F. stages one may control either the first valve or both. In a superheterodyne the H.F. valve, the I.F. amplifier, and sometimes the first detector, may be controlled.

Hardly any alteration need be made to the receiver. The resistance R2, though a part of the control, is mounted in the set, and joined to terminal No. 3 of the unit by a flexible lead.

The grid return leads of the controlled valve, or valves, are merely joined to terminal No. 4 instead of to their normal source of bias voltage (see Fig. 1). Unless the decoupling components C and R are

[1] See "The History of A.V.C." in this issue.—ED.

Fit A.V.C. to Your Receiver—already fitted in the set, it will generally be necessary to add them; values of 0.1 mfd.



Rear view of the unit, with batteries in position.

and 0.5 to 1 megohm will be about right. In a battery set all that one usually has to do is to remove the H.F. bias leads from the G.B. battery and connect them to the unit.

It is desirable that the controlled valves should be of the variable-mu type, although the unit will work, but not at its best, with ordinary S.G. valves. With a battery set, the A.V.C. valve will be fed with L.T. current by connecting its terminals Nos. 1 and 2 across the L.T. battery or the L.T. bus-bars of the receiver. The extra valve, which may be of the "H.L." or general-purpose type, must of course operate at the same filament voltage as the receiver valves, or a resistance will be necessary.

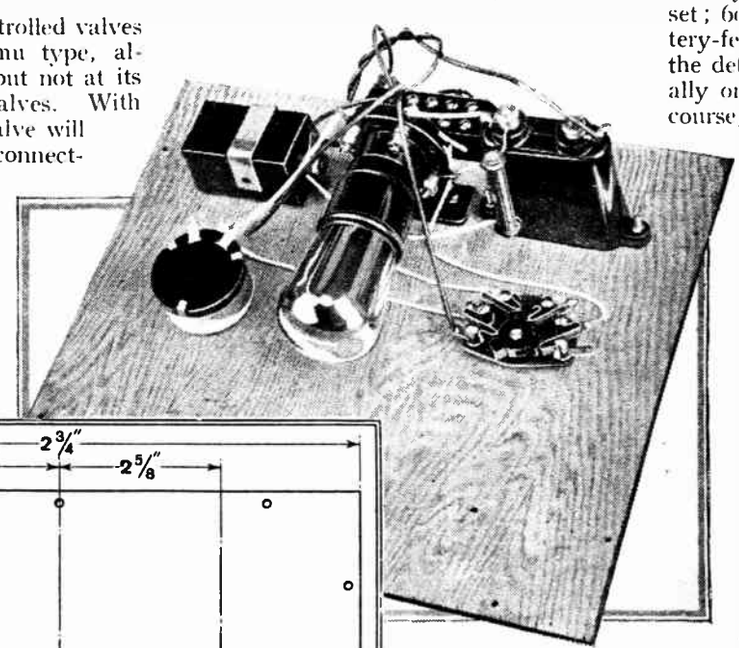
To make initial adjustments, a weak signal should be tuned in with the A.V.C. switch at "off." Then, having switched on, the grid bias positive plug is inserted in the most positive socket, and the bias plug marked -GB1 in Fig. 3 is joined to a negative socket, the remaining GB plug being left temporarily free. Bias should now be roughly adjusted by moving the -GB1 plug progressively from socket to socket until a point is reached where signal strength is restored to approximately its original value.

Having found this rough adjustment, the potentiometer should be put into operation by joining -GB1 to a point 6 or 10 volts more negative than the original adjustment, the other plug (-GB) being then joined to a slightly less negative point than that of the original rough adjustment. With the potentiometer slider at one end of its travel, the receiver will be insensitive; the knob should now be rotated slowly from that point until full sensitivity is just restored. For complete control this will be the correct operating point, but if a little delay is to be introduced, the knob should be rotated a shade further to give excess negative bias. The potentiometer adjustment is easily mastered, and it should be realised that it determines to a large extent the average level at which signals will be reproduced; very often it will replace a manual control entirely.

An H.T. battery of 60 volts will be satisfactory in many cases, but often a rather higher voltage is desirable. The grid bias battery needed depends entirely on the set; 60 volts will be ample for most battery-fed receivers, but in some mains sets the detector works at over 100 volts actually on its anode; this pressure must, of course, be balanced out, and a few extra negative volts must be available. If the exact voltage is not known, it can easily be determined by trial; until sufficient negative bias is applied, the set will be completely lacking in sensitivity.

For use with A.C. mains receivers, an indirectly-heated valve may be fitted to the unit as shown in Fig. 4 (a); if it is preferred to use an L.T. battery connections will be as in Fig. 4 (b). The H.F. bias limiting cell should be omitted when the controlled valve or valves normally obtain a minimum bias from a resistance in their cathode leads.

Those who are unfamiliar with A.V.C. may be reminded that no system can compensate in any way for a fading signal when it falls below the threshold value at which the control becomes operative. This point is shown graphically in Fig. 2; when readings were taken at 0, 4 and 6 minutes, this limit was reached, and it was only then that any appreciable changes in detector output occurred.



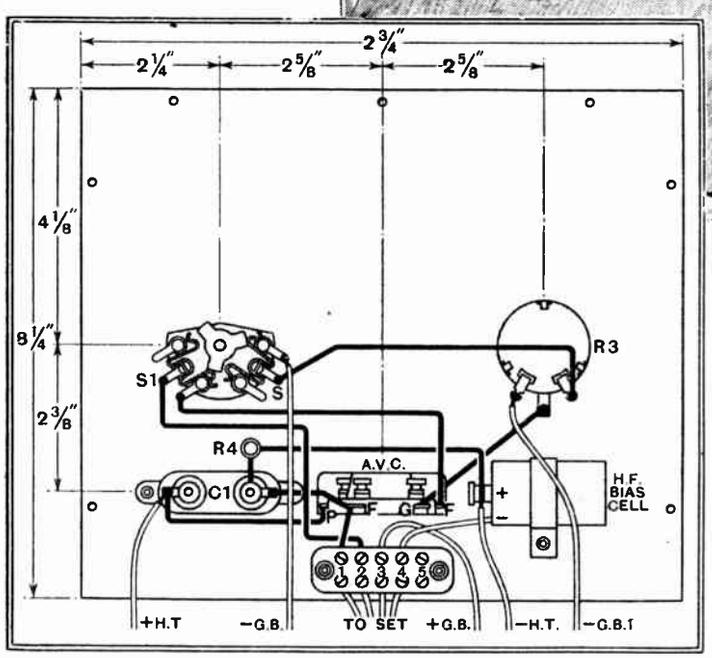


Fig. 3.—Mounting of components on the underside of the top panel, and (below) practical wiring plan.

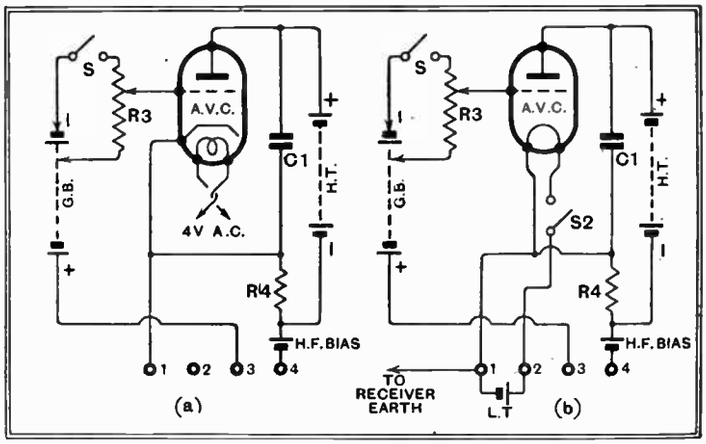


Fig. 4.—Practically no alterations are necessary when the unit is operated with an A.C. mains set, although an indirectly-heated valve may be used.

A specimen unit is available for inspection at 116-117, Fleet Street, London, E.C.4.

LIST OF PARTS

1 **Valve-holder**, horizontal type — **W.B. "Universal"**
1 **Potentiometer**, 50,000 ohms, **R3** — **Rotor-Ohm**
(Bulgin, Lewcos, Claude Lyons, Radiophone, Watmel, Wearite)
1 **Resistance, fixed**, 0.5 megohm, **R2** — **Erie**
1 **Resistance, fixed**, 0.25 megohm, **R4** — **Erie**
(Dubilier, Graham Farish, Loewe, Claude Lyons)
1 **Fixed condenser**, 0.5 mfd., **C1** — **Dubilier**
(Formo, Hellesens, Peak, Radiophone, T.C.C., Telsen)
1 **Dry cell**, 1.5 volt — **Ever Ready Size "O"**
(Lissen, Siemens)
1 **Connector**, 5-way — **Wilburn**
5 **Wander plugs**, H.T.−, H.T.+, G.B.+, G.B.−, G.B.−1, **Clix Type "B"**
(Belling-Lee, Bulgin, Eelex, Goltone, Lissen)
2 **H.T. batteries** (see text).
Wire, sleeving, flexible wire, screws, wood, etc.

The History of A.V.C.

An Old Idea Harnessed to Modern Needs

AUTOMATIC volume control, in its popular application to broadcast receivers, is of comparatively recent date. Naturally the first applications were to receivers for telegraphy reception, and here it did not matter if the control was effected on the modulated signal after detection. For the reception of music, however, it is desirable, in order to avoid a flattening out of the reproduction, that the automatic volume control should operate on the strength of the carrier wave and be unaffected by the degree of modulation.

ALTHOUGH automatic volume control is comparatively new as applied to broadcast receiving sets, it ranks as a more or less time-worn expedient in the older arts of line telegraphy and telephony. That is to say, so far as its application to the problem of "fading" is concerned.

The conductivity of a line-wire changes considerably under different climatic conditions. Extremes of temperature and of moisture produce different attenuation losses, which must be compensated if a reasonable level of speech or signal strength is to be maintained.

Perhaps the first solution was to provide a separate pilot line, through which control signals were sent from time to time, in order to allow the amplification at repeater stations to be supervised manually and readjusted as and when required.

Some fifteen years ago a system was developed in which this operation was performed automatically by means of a variable potentiometer arranged in the input circuit of the amplifier valves. As telephone lines are usually grouped together, it is a simple matter to set aside one circuit for control purposes.

An Early Scheme of A.V.C.

The pilot line forms one arm of a Wheatstone bridge, which is provided with a polarised relay across one diagonal and a source of E.M.F. across the other. Any abnormal change in attenuation unbalances the bridge and brings a small motor into operation to shift the potentiometer tapping until the new conditions have been met.

A system of this sort is not, of course, suitable for broadcasting where one is dealing with a modulated carrier wave instead of ordinary L.F. signals. Also, it must be borne in mind that alterations in the ether channel, such as those which give rise to ordinary fading, occur much more rapidly, and erratically, than the slow climatic variations which are the chief concern of the line engineer.

In broadcast reception the common practice is to utilise the rectified carrier-wave as the source of a special biasing-voltage, which is led back to control the sensitivity of the H.F. stages. The signal or modulation components are, in general, not suitable for this purpose, because they tend to flatten out the pianissimo and fortissimo passages to the same dead level of sound. Of course, if a sufficient time delay is included, the modulation components may help to cope satisfactorily with slow fading, such as is met with on some of the longer wave stations.

A noteworthy attempt to utilise the detector output to control the performance of preceding H.F. valves dates from 1923, and although originally devised as a means for reducing "static" and other interference in a commercial wireless telegraph system, it appears to disclose the fundamental principle of automatic "gain" or volume control as utilised to-day in broadcast sets.

As shown in Fig. 1, the voltage developed across a resistance R in the output of a leaky-grid detector valve is led back to bias a pair of valves V1, V2 connected in shunt to the aerial and tuned input circuits. The result is to apply a variable damping to these circuits as the anode-cathode resistance of the auxiliary valves V1, V2 is altered by the change in the grid bias.

Principle of Operation

Heavy atmospherics—or a strong interfering signal—which tend to throw the grids positive, will reduce the internal resistance of the valves V1, V2, and so diminish the efficiency of the input circuits. In effect, the arrangement gives a certain degree of automatic volume control, though not specifically designed for this purpose.

Perhaps the first definite attempt to tackle the problem of fading along modern lines is that shown in Fig. 2, which dates a couple of years later, in 1925. The circuit is a superhet, and energy is taken from the second detector stage D2 by a series circuit L, C tuned to the intermediate frequency, and fed to an amplifier V1.

The amplified output is first rectified by a valve V and then applied through a resistance R to control the grid bias of the high-frequency stages H.F. and

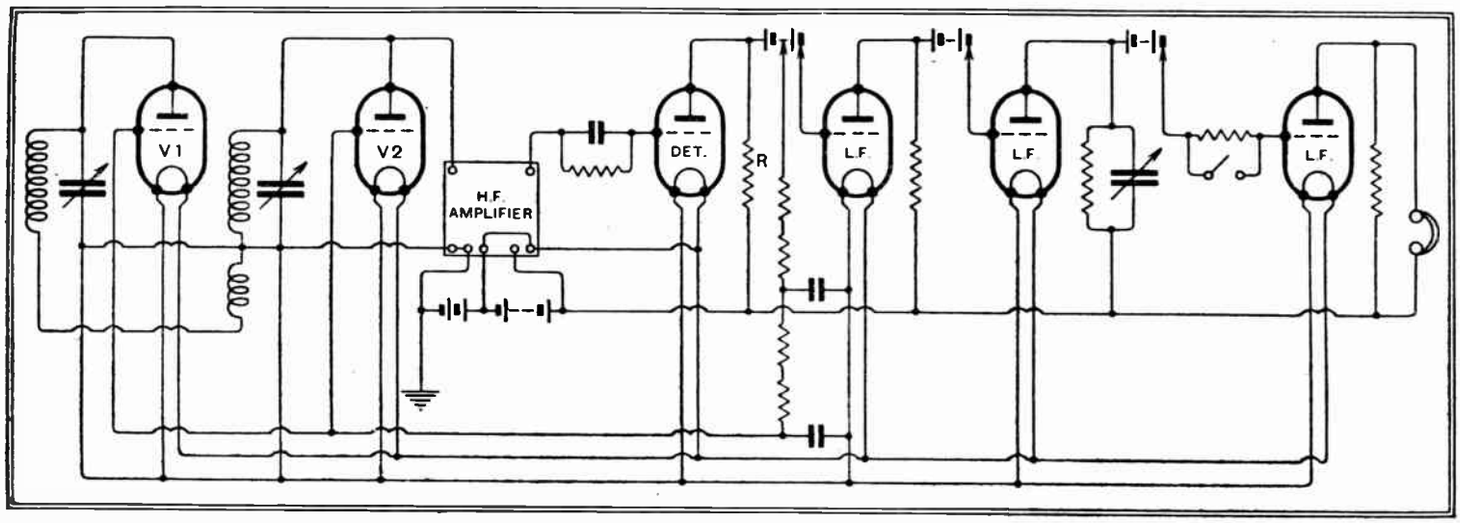


Fig. 1.—A circuit dating from 1923, where the output from the detector is made to control the performance of H.F. valves.

The History of A.V.C.—

From this point progress becomes more rapid, and in 1926 we find a system in which the control voltage is used to bias a valve—functioning as a variable impedance—in one arm of a Wheatstone bridge. The input is applied to one diagonal, and the output is taken from one of the arms of the bridge through a transformer. Here, again, the primary application is to line telephony, but the object of attaining a uniform high-quality transmission over a wide frequency band is deliberately kept in view.

A few months later—early in 1927—we find the circuit shown in Fig. 3, which includes the modern principle of amplified A.V.C. The output from a leaky-grid detector V is fed to a resistance R, and the voltage produced, after amplification in a direct-current amplifier V1, reappears in the resistance R1, from which it is applied to bias the high-frequency stages H.F. and H.F.1. A variable tapping affords an additional "manual" control of volume.

In the same year we discover an appreciation of the desirability of combining "visual" tuning means with sets fitted for A.V.C., and also a disclosure of the use of a "diode" rectifier for obtaining both signal and A.V.C. voltage from the same valve. Further, it is shown how the principle of A.V.C. may be applied to eliminate the effect of fluctuations in the main supply voltage.

Since 1927 the number of circuit arrangements designed to provide A.V.C. have been legion. In some cases "mechanical" control is utilised, but mostly the control is wholly electrical. The former type is hardly suitable for ordinary broadcast reception, since the small power available demands the use of very delicate instruments.

One illustration may perhaps be given, in which a milliammeter is inserted in the output circuit of the detector valve and is fitted with a moving vane, which also forms one of the vanes of the aerial tuning-condenser. This, on the face of it, is more ingenious than practical.

The electrical systems are almost entirely based on the principle of varying the grid bias on the H.F. valves, using the rectified carrier-wave for the purpose. Here the depth of modulation affects the output to some extent, i.e., a station with 80 per cent. modulation gives a signal twice as loud as one with only 40 per cent. modulation.

In some cases the output from the L.F. amplifiers has also been utilised, although, as previously stated, this tends to soften loud passages and strengthen weak ones unless the control is deliberately "delayed," in which case it is ineffective for "rapid" fading or when the set is tuned through a strong station. The period of "delay" is fixed by applying the control voltage to a condenser through a series resistance, so that the time taken by the condenser to charge comes into account.

Owing to the tendency to produce cross-modulation, the use of a variable grid-bias did not in practice prove very satisfactory prior to the introduction of the variable-mu valve. Even with the variable-mu valve, A.V.C.—to be a really practical proposition—demands a generous range of control voltage, of the order of 40 or 50 volts, as compared with the 5-10 volts originally used with the ordinary screen-grid type of valve.

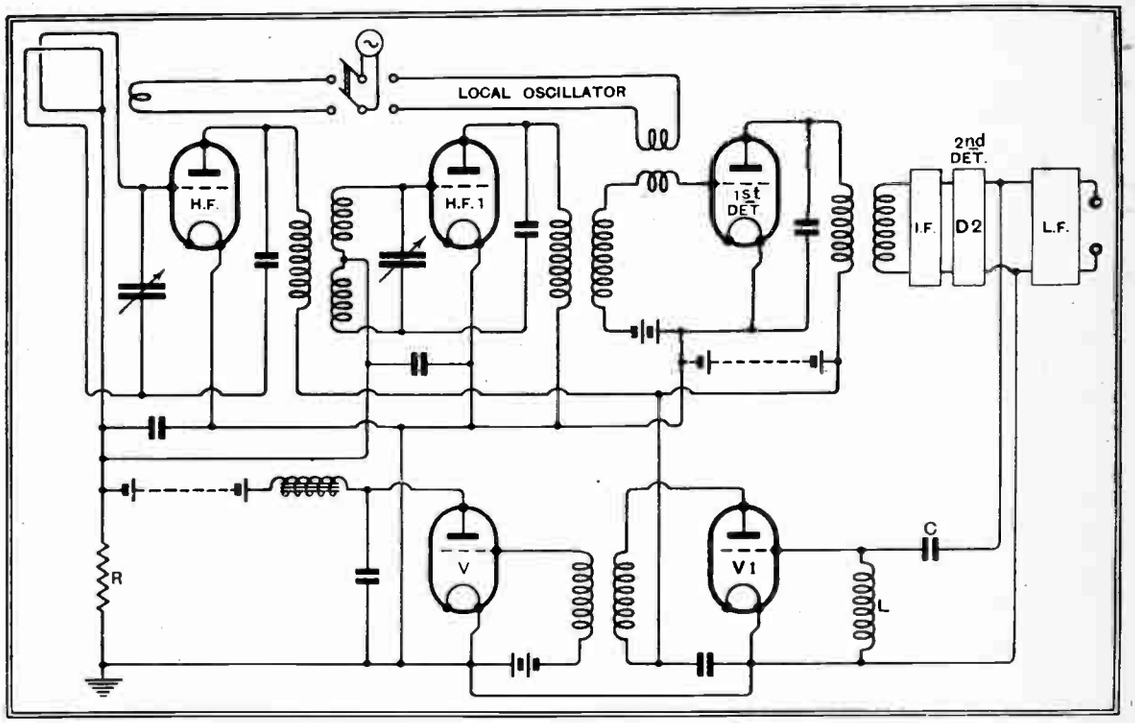


Fig. 2.—A circuit of 1925 where the amplified output, after rectification by the valve V, is applied to control the grid bias of H.F. stages.

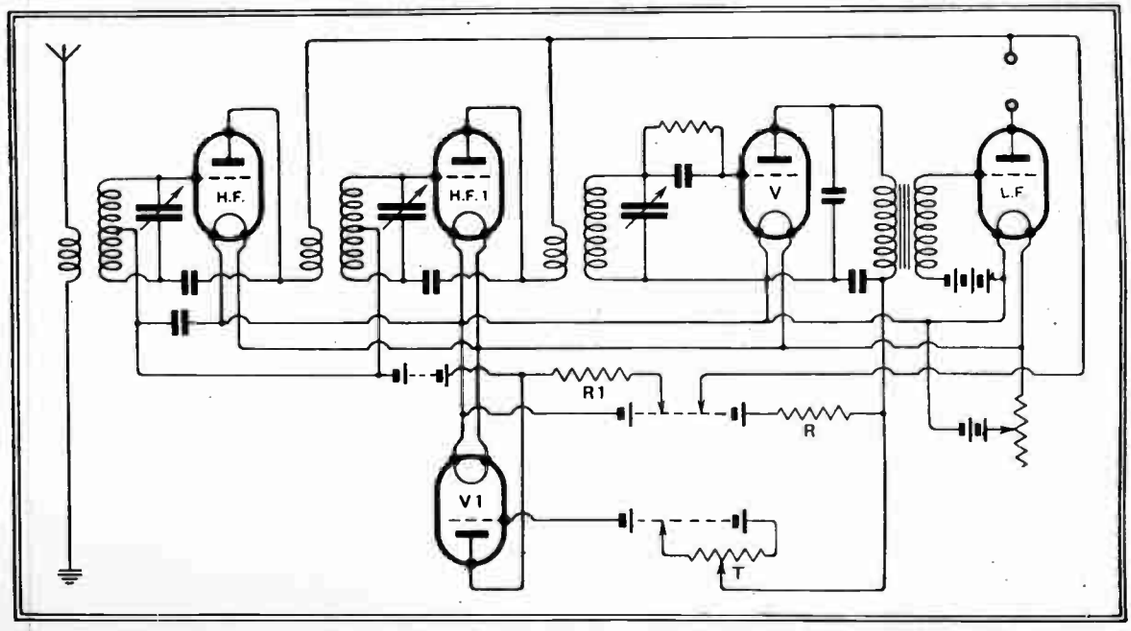


Fig. 3.—The A.V.C. valve V1 is operated by voltage changes on the detector anode.

UNBIASED

A Cabinet Question

HOW gratifying it is to see that at least one or two set manufacturers have had the courage and foresight to break away from the conventional style of "table-top" receiver! I refer, of course, to the type in which the loud speaker is housed over the tuning controls. Sets of this shape have always annoyed me, personally, for the simple reason that I consider them ugly, unwieldy and topheavy; thousands may think otherwise.

It will be remembered that this sort of set first appeared at the 1931 exhibition, as the result of the incorporation of the loud speaker into the receiver. What really set me against them was not the shape, but the fact that cabinet makers were permitted to dictate to British set manufacturers what shape the new type of set should take; in fact, they openly boasted about it.

The result was, of course, that all set manufacturers were compelled to follow each other like sheep in the matter of design. It is just as though brewers allowed bottle manufacturers to compel them to market good, honest beer in medicine bottles.

The new oblong shape with the loud speaker at one end is, to my mind, far more pleasing to the eye, and its shape far less difficult to fit into an odd corner of the average house. I do hope, however, that the change in shape *is* the result of initiative shown by a few set makers, and that the real explanation is not that they are being led by the nose once more by the cabinet makers. If this is so, my present mellow feelings toward the new shape will turn malignant. I suppose we must wait until this year's exhibition opens, and then, if there is a plethora of oblong sets, we shall know that once more the cabinet makers are calling the tune.

Good, honest beer in medicine bottles.

Experiments highly successful.

I Am Warmly Thanked

THIS new screened aerial wire about which everybody is talking is going to be a boon and a blessing to a very large number of people affected by interference of the type re-radiated by their own mains. It will confer no benefit, however, if the noise emanating from the loud speaker is not due to this particular cause.

A case in point came to my attention the other day; fortunately, the householder had not yet spent his money, and happily I was able to prevent him doing so by a simple test which showed that a screened down-lead would not solve his particular problem. Luckily, he possessed a garden hose of the first quality, and, cutting off a suitable length, I threaded through it the down-lead of the lowered aerial. The next requirement was foil from cigarette packets, but, as he was a non-smoker, we were delayed for a time until the maid ran round to purchase a few dozen "tens."

It was a simple matter to wrap the hose in tinfoil and hoist the whole contraption aloft. Our experiments were highly successful; the disturbance still persisted, thus proving that the interference was not coming in *via* the down-lead. The owner of the installation warmly thanked me for saving him the expense of buying a length of the special down-lead for his experiments. Incidentally, he has enough coupons from the cigarette packets completely to reclothe his wife and family. All he must buy is a new hose.

In the Surgery

A WELL-KNOWN radio scribe has been telling his readers that when undergoing a minor surgical operation under a local anæsthetic in New York some time ago he insisted on having with him a radio set to distract his attention while in the shambles.

Having first-hand knowledge of American programmes as dished up to New Yorkers I can only suppose that he got the idea from those Chinese dentists who apply thumbscrews to their patients as a counter-irritant.

Why Not Folding Radio-grams?

BUILDERS in this country seem to be vying with each other in the production of smaller and yet smaller houses, so that there is no room to swing even a kitten, and a Manx one at that.

By FREE GRID

This state of affairs is seriously affecting the popularity of radio-gramophones, according to a radio dealer to whom I have been talking. Being in a district where these new houses are going up overnight, he used vigorous language in denouncing radio manufacturers who have so far failed to cater for this large potential market for smaller and more adaptable radio-gramophones and console receivers. He got me so interested that I gladly accepted his invitation to visit a neighbouring new estate.

Space was obviously lacking.

After wandering through oceans of mud and using our umbrellas to beat off the hordes of estate agents and others who buzzed around us, we inspected several houses. Although space was obviously lacking for the ordinary type of radio-gramophone and console receiver, there seemed plenty of scope for any intelligent designer to produce suitable instruments.

Can you think of anything more appropriate than to build a radio-gramophone into one of those delightful "compactum" wash-hand stands which one encounters on board ship? The moving-coil loud speaker would take the place of the customary mirror, while the turntable would occupy the place of the basin, and would conveniently fold up when not in use. As for the tuning controls, there would be ample space at the bottom of the mirror, while the heavy mains gear or the batteries would go nicely into the space usually occupied by the waste water receptacle. The dealer who was accompanying me was quite enthusiastic about the idea.

Practical Class "B" Amplification

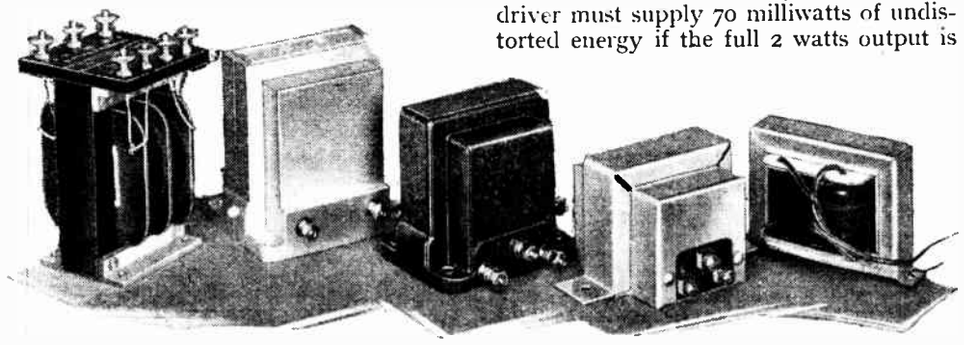
Choosing the Right Components for the Driver Stage

By W. I. G. PAGE, B.Sc.

IN view of the remarkable performance of the new Class "B" battery valve, both as regards quality of reproduction and power output, it can safely be predicted that this type of output will be included in the majority of future battery sets. The choice of the correct driver valve and the calculation of the driver transformer ratio, among other points, are dealt with in detail in the accompanying article.

SO many technical developments have occurred within the last few months that the most earnest student can be forgiven if he has difficulty in keeping abreast of each one. Take the case of Class "B" amplification, first described in *The Wireless World* but two weeks ago. Although the reader has been given a theoretical explanation of the new system, there are some practical aspects which need consideration. For instance, there are on the market numerous driver transformers necessary for feeding the Class "B" valve, some of which are shown in the illustration. In a number of cases the overall ratio (total turns on primary to total turns on secondary) is 1 to 1, while in others the step-down ratio is 2 to 1, or even 3 to 1, which is equivalent to 4 to 1 or 6 to 1 when we refer the primary to half the secondary, and the question arises as to which is the best type to choose for any given set of conditions.

Before a decision can be made it will be as well to remind ourselves of the somewhat strange conditions obtaining in an output stage where grid current is purposely made to flow. The two valves forming the dual Class "B" valve are each of the comparatively high-impedance detector type, and pass little anode current at zero bias, but, of course, run into grid current as soon as a signal is received. As each grid in turn becomes positive, electrons from the filament are collected by it, thus completing a current path across half the transformer secondary, making a partial short-current across it. Naturally, a complete short-circuit of the secondary would put the two ends at the same potential, destroying the signals entirely. A partial short circuit, on the other hand, merely reduces the signal volts available.

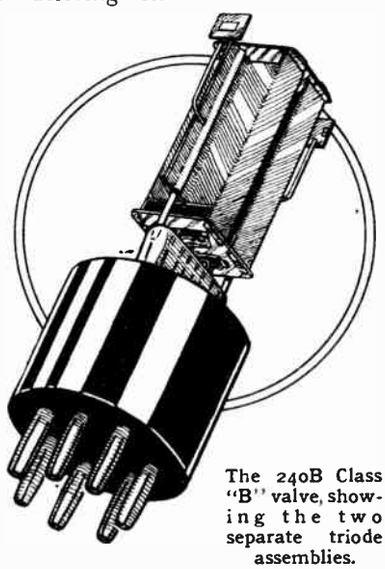


Five driver transformers with ratios from 2 to 1 up to 5 to 1 per half-secondary. From left to right, R.I., Lotus, Sound Sales, Benjamin and Trix.

Now to maintain full volts in face of the current drain through the valve, a source of power must be provided. This is effected by a transformer deriving its power from a small output valve—the two together being known as the "driver" stage. From this it will be clear that output valve technique must be applied to the intermediate L.F. stage which precedes the output stage proper. How much power is required from the driver to make up for the losses incurred when grid current flows round the grid circuit of the Class "B" valve? It is not easy to work this out for ourselves, but the makers of Class "B" valves will always have to supply the figure, taking into account the D.C. resistance of the secondary of the driver transformer, the copper losses, etc. In the case of the Cossor 240B valve, the driver must supply 70 milliwatts of undistorted energy if the full 2 watts output is required from the loud speaker stage.

There are a large number of valves capable of delivering 70 milliwatts when working into the correct load which (where triodes are concerned) should be about twice the A.C. resistance of the valve. In the interests of anode current economy it has been found better to choose a valve rated for, say, 150 to 200 milliwatts and to bias it back until the reduced output is obtained. The type of small power valve with which this is possible nearly always has a gradual bend in the characteristic curve, and so the process of slight overbiasing does not introduce noticeable curvature distortion, especially when the input is small. Where rather more than the optimum bias is applied, the required anode load will, of course, be a little higher than the normal, because the valve's A.C. resistance will be increased.

This will explain why a suitable driver for the 240B is to be found in the Cossor 215 P, which *The Wireless World* Valve Data Supplement tells us will deliver 150 milliwatts at 150 volts H.T., 7.5 volts bias (10 mA. anode current) when working into a load of 9,000 ohms. At 120 volts it will deliver 70 milliwatts when biased to 9 volts, and the anode current will be 2.5 mA., while the load will have to be a little more than 9,000 ohms, say, 10,000 ohms. The most sensitive valve for the driver stage would undoubtedly be one of the high-efficiency pentodes (220 HPT, PT2, Pen.220, or PM22A), but as the cost is just twice that of a small power valve, it is unlikely that it will find wide application.



The 240B Class "B" valve, showing the two separate triode assemblies.

The next problem is the choice of the correct ratio of driver transformer. Before we can tackle this we must know the minimum impedance of the grid-filament circuit of one of the members of the dual Class "B" valve. Obviously when grid current to the tune of many milliamperes is flowing the internal grid-filament path is highly conductive, and is equivalent to a resistance of quite a low value. Actually the figure for the 240B is 2,500 ohms, and as only one half of the valve is in operation at any moment we are at liberty to ignore the other half. The secondary of the driver transformer being centre-tapped acts as a 2 to 1 auto-transformer, so the load across the whole winding is $2^2 \times 2{,}500 = 10{,}000$ ohms. But this is the load we require for the anode of the 215P valve. We are thus left with the simple problem of transferring 10,000 ohms from secondary to primary, necessitating, of course, a 1 to 1 ratio (or as some of the manufacturers put it—a 2 to 1 step-down ratio per half-secondary).

Had the driver valve required a load of 20,000 ohms to give the necessary 70 milli-

Practical Class "B" Amplification—

watts the driver transformer step-down ratio would have to be $\sqrt{2}=1.4$ (or 2.8 to 1 if referred to half the secondary). Again, a driver valve load of 40,000 would be given by an overall step-down ratio of $\sqrt{4}$ to 1 = 2 to 1 (or 4 to 1 per half-secondary), and so on. This explains why there are transformers on the market with overall ratios other than 1 to 1.

There are probably a number of readers who will find one watt output sufficient for their needs, in which case the grid swing of the Class "B" valve can be restricted, and a loss of about 35 milliwatts only will have to be compensated. This can easily be handled by a detector-type driver valve consuming about 1½ mA. anode current, which, owing to its high impedance, will require a load of high value—an instance where a 4 to 1 or 6 to 1 step-down ratio (per half-secondary) will be required.

The transformer linking the 240B valve to the speaker must have a ratio such that the load across the primary is 8,000 ohms (or rather more than this if a small driver restricting the output is used).

Take, for example, a speaker with a speech coil impedance of 2 ohms; the output transformer ratio would have to be $\sqrt{8,000 \div 2}=63$ to 1 step-down, and a speech coil impedance of 10 ohms would require a ratio of 28 to 1. Fortunately the majority of Q.P.P. output components already on the market are suitable.

It is interesting to note that because the grids of the Class "B" valve rob the anodes of current, the characteristic curves are similar in general shape to those of the screen-grid valve or pentode—this in spite of the fact that each half of the dual valve is a triode. The higher audio frequencies are, therefore, inclined to be accentuated, and compensation is desirable. If, however, the usual filter is connected across the output transformer primary, anode current is consumed for the high notes which are shunted away. It is therefore better to control the tone before the driver valve, as this leads to an appreciable economy in anode current.

As regards the sensitivity of the 240B output valve, a little more than 2 watts can be obtained from a signal of 9 volts peak applied to the driver valve—a highly satisfactory performance.

Class "B" amplification combines two virtues of great importance to the battery user: the first, an efficiency which is considerably greater than any other output stage, and the second, low cost, for the price of the dual valve is only 14s.

ULTRA-SHORT WAVES

THE April number of "The Wireless Engineer" contains two important articles on ultra-short waves. One deals with experimental broadcasting on 7.85 metres, carried out by the Philips Laboratory in Holland, describing the transmitting and receiving apparatus. The other contribution gives constructional details of an ultra-short-wave oscillator.

The issue, in addition to other material, contains monthly abstracts of the world's technical wireless articles, an indispensable service to serious experimenters. Copies can be obtained by order at bookstalls, or direct from the publishers of *The Wireless World*.

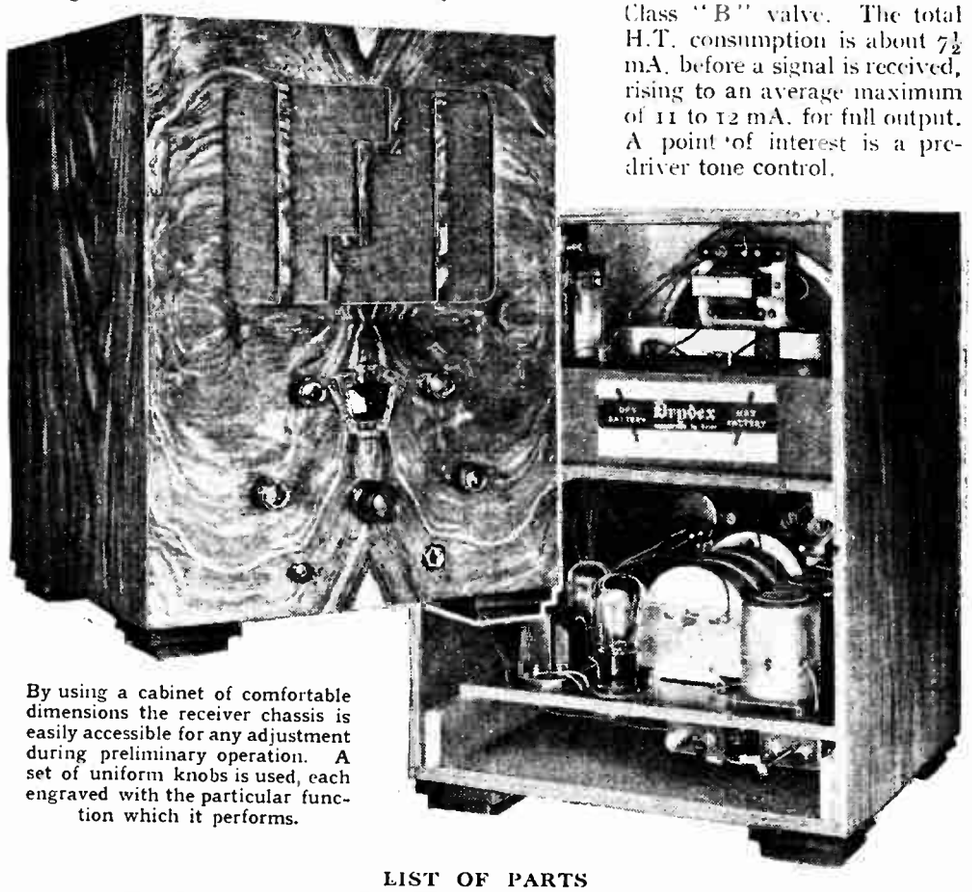
In Next Week's Issue:—

The Class "B" Ferrocart Receiver

A Highly Selective 4-valve Battery Set Giving the Remarkable Power Output of 2-watts

THIS receiver embodies the most advanced technique in battery receiver design. Selectivity approaching that of a superheterodyne is obtained by the use of three Ferrocart coils arranged as a band-pass filter and tapped tuned anode coupling. This, combined with the extremely high sensitivity of the new Class "B" L.F. amplification ensures an outstanding all-round performance. During initial tests no fewer than seventy-two stations were identified on the medium waveband alone, making a total of some eighty stations when the long-wave range is included.

The enormous power output of two watts speech can be obtained either from gramophone record or radio with quite a modest H.T. consumption. There are four valves in all, the first a variable-mu H.F. amplifier, the second a grid detector, the third a driver, and the fourth a dual Class "B" valve. The total H.T. consumption is about 7½ mA. before a signal is received, rising to an average maximum of 11 to 12 mA. for full output. A point of interest is a pre-driver tone control.



By using a cabinet of comfortable dimensions the receiver chassis is easily accessible for any adjustment during preliminary operation. A set of uniform knobs is used, each engraved with the particular function which it performs.

LIST OF PARTS

After the particular make of component used in the original model, suitable alternative products are given in some instances.

Set of Three Ferrocart tuning coils, Colvern type F1, F2, F3
1 3-gang tuning condenser and disc drive Polar "Star"
1 Reaction condenser, 0.0002 mfd. Ormond R/504
(J.B., Utility)
1 H.F. choke McMichael Binocular Junior
(Bulgin)
3 5-pin Valveholders Clix chassis-mounting type
1 7-pin Valveholder Clix chassis-mounting type
(Benjamin, Radiophone, W.B.)
1 4-pt. double-throw switch with distant control Radiophone type 450.X.
1 On-off switch with distant control Radiophone type 485.Y.
1 3-pt. switch with long throat Radiophone type 630
1 Volume-control potentiometer, 25,000 ohms Wearite Q.V.C.
(Bulgin, Radiophone, Watmel)
1 Tone-control potentiometer Multitone
1 Tone-control Transformer, 4 to 1 Multitone "Toco"
1 Driver transformer, 1 to 1 overall Multitone
(Benjamin, Ferranti, Lotus, R.I., Sound Sales, Trix, Varley)
1 Resistance, 100 ohms, 1 watt Dubilier
1 Resistance, 250 ohms, 1 watt Dubilier
1 Resistance, 5,000 ohms, 1 watt Dubilier
1 Resistance, 40,000 ohms, 1 watt Dubilier
1 Resistance, 50,000 ohms, 1 watt Dubilier
1 Resistance, 500,000 ohms, 1 watt Dubilier
(Erie, Graham Farish, Claude Lyons)
3 Non-inductive condensers, 1 mfd., 200 v. D.C. working T.C.C. type 50
1 Condenser, 1 mfd., 250 v. D.C. working T.C.C. type 65
1 Condenser, 2 mfd., 250 v. D.C. working T.C.C. type 65
1 Condenser, 0.0001 mfd. T.C.C. type "M"
1 Condenser, 0.0003 mfd T.C.C. type "M"
(Dubilier, Hellesens, Peak)
4 Terminals, aerial, earth, pick-up, pick-up Belling-Lee type "M"
2 Terminal mounts Belling-Lee
Baseboard, Plymax, 10in. x 14in. x ⅜in. Peto-Scott
With battens and brass metal strips
6 Wander plugs, G.B.+, H.T.+1, H.T.+2, G.B.−1, G.B.−2, G.B.−3 Clix type B
2 Spade terminals for L.T. Clix
1 Pilot lamp, 2 volt. Bulgin
1 Tuning knob pilot lamp switch Wearite
1 Set of uniform engraved knobs Danipad
Screened sleeving, 1 yard Harbros
2 oz. No. 20 tinned copper wire, 4 lengths Systoflex, wood, flex, etc.
Wood Screws: 20 ⅜in. No. 4 R/hd.; 12 ½in. No. 4 R/hd.; 4 ⅜in. No. 6 R/hd. **Metal Screws:** 8 4B.A.; 12 6B.A., with nuts and washers
4 Valves: 220VSG, metallised; 210HF, metallised; 215.P, and 210.B Cossor

1 Loud speaker with Class "B" transformer Amplion
(British Rola, Celestion, Ormond)
1 H.T. battery, 12 mA. type, including bias battery, measuring 10⅜ 16in. x 6⅜ 16in. x 3⅛in. Drydex H.1063
(Ever Ready, W.1210)
1 L.T. accumulator Exide D.F.G.
Cabinet C.A.C. Cabinets, Ltd.

Simplified Aids to Better Reception

IN the first decade of the present century the test buzzer was used as an aid to the adjustment of coherer detectors, and with modifications in construction and method of application is still used as a handy and, above all, inexpensive generator of feeble oscillations. It is probably the only device that has survived since the early days of wireless.

Points About Buzzers

In spite of the cheapness and low current consumption of present-day valves, the buzzer is still of real practical value for use in energising a radiating wavemeter, and its uses in this direction have recently been described in *The Wireless World*. In addition, there are other but less well-known applications.

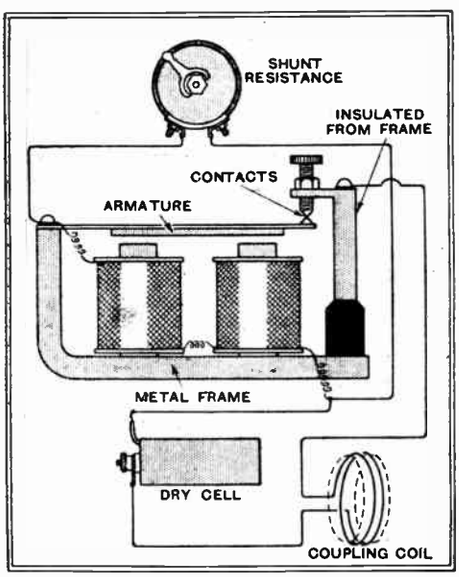


Fig. 1.—Diagrammatic sketch showing the construction and connections of a buzzer. Any tuned circuit in inductive relationship with the coupling coil is "shock-excited" into oscillation at its own natural frequency.

It is rather a pity that "wireless type" buzzers are not more readily available. Still, the ordinary pattern can, with slight alteration, be made to serve, but will generally produce rather too much mechanical noise. To reduce this, a soundproof container can be made, with an absorbent mounting to prevent vibration.

The make-and-break device should operate at a high frequency in order that a distinctive note may be produced. A buzzer that is unsatisfactory in this respect may often be improved by reducing the weight of the armature and at the same time damping its movements by suitably disposed blocks of rubber arranged so that they bear on the armature spring.

In order that a buzzer may be made to "kick" a tuned circuit into oscillation it is necessary to prevent the minute spark which normally occurs at the instant when the vibrator contacts open. To this end the coils are shunted with an absorbing resistance, generally of rather lower ohmic value than that of the coils themselves. Up to a point the strength of oscillations is greatest with a low value of shunt resistance, but here we find the need for compromise. The connection of too small a parallel resistance will prevent the buzzer from starting freely when switched on.

It has recently been found that the buzzer is by no means a "back number" for testing modern sets. Wired as shown in the accompanying sketch, with a two-turn exciting coil connected with long leads, it may be used to energise circuits in which screened coils are used, and is thus suitable for tracing faults stage-by-stage. The coupling coil may be placed inside the screening cover of a coil forming part of a circuit under suspicion. Tests of the I.F. amplifier of a superhet. may be made in the same way, although a few more turns on the coupling coil will generally be needed.

IT may be pointed out that the quiescent push-pull system of amplification with three-electrode valves, as discussed in *The Wireless World* for February 24th, may be employed in the receiver described constructionally in the issue of January 20th. The sole proviso is that the valves chosen must operate with a grid bias not in excess of about 15 volts, as there is no intermediate L.F. stage. In practice this means that valves of the "low power" class, such as Marconi and Osram LP2, Mullard PM2A, or Cossor 220PA, would generally be most suitable.

Q.P.P. With Triodes

Beyond such obvious alterations as the use of four-pin valve-holders, and the fact that provision for close adjustment of auxiliary grid voltage will no longer be necessary, practically no changes need be made. The voltage of the grid-bias battery will depend on the valves chosen, and also on the H.T. voltage to be applied to them; full information on this subject is obtainable from the tables published in the article referred to.

ANY desired proportion of the voltage developed across a smoothing choke inserted in the negative H.T. lead may be applied as grid bias; in this way we can get bias voltage that is really "free." The possibilities of this scheme, as applied to A.C. sets, have already been dealt with in this journal; the system is one that might be more widely adopted in cases where it seems to offer any benefit.

Really Free Bias

In certain circumstances, the same principle may with advantage be employed in D.C. sets. When the supply voltage is low—say, a bare 200 volts—and when the positive main is earthed, the arrangement shown diagrammatically in Fig. 2 has been found satisfactory, and is well worth a trial. At the worst, practically nothing will be wasted, as, in the unlikely event of failure, the components may be rearranged in the conventional manner.

In the circuit in question the smoothing choke is in the negative H.T. lead, and assuming average values, the voltage developed across it will be more than enough to bias a D.C. pentode output valve. Any proportion of this voltage may be taken off by shunting the choke with a potentiometer, to the slider of which the grid circuit is connected.

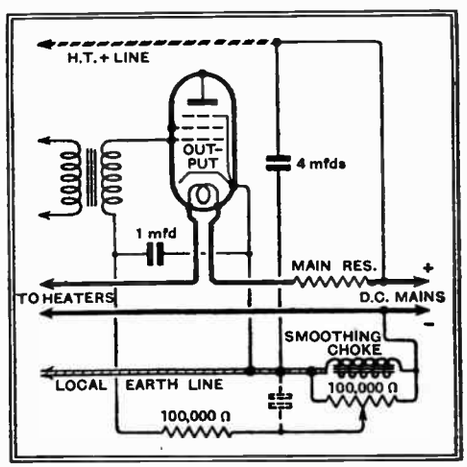


Fig. 2.—Automatic bias without loss of H.T. voltage: an arrangement that is especially applicable with D.C. supplies of 200 volts or less.

To prevent hum, grid decoupling components should have approximately the values indicated, as a certain amount of smoothing will be required here. The extra condenser, shown in dotted lines, will not always be necessary; when it is, a value of 1 mfd. will be suitable.

NEWS of the WEEK

Current Events in Brief Review

Free Programme Journal

RUMOURS are continuing that German listeners are to be provided by the State with a free broadcasting programme journal. It is considered that such a step would seriously affect the independent radio papers, of which there are about sixty.

Fifty-year-old Valve

AN exact replica of an Edison valve first designed in the early 'eighties was used recently in a special programme over the network of the American National Broadcasting Company. Edison's patent revealing his discovery of the electronic flow in the vacuum tube was taken out in November, 1883.

S.B. in Italy

THE Italian Broadcasting authorities are following B.B.C. practice by transmitting two programmes simultaneously from Milan. The "Northern Programme" goes out from the new station at Siziano, while from the old transmitter at Vigentino, not yet demolished, programmes are transmitted for Rome and the south.

Radio Mass Forbidden

OWING to the shortage of priests in many French country districts requests have been made that masses might be broadcast and relayed through loud speakers in priestless churches. But the Vatican journal, *L'Osservatore Romano*, lays down the Catholic doctrine that "to accomplish their duty the faithful must be present in a church where the mass is celebrated."

A Processional Innovation

A REMARKABLE radio demonstration marked the inauguration of the Lyons Spring Fair. In answer to a broadcast request from the Lyons la Doua station, all listeners along the path of a public torchlight procession placed their receivers on the window sills so that the spectators enjoyed a continuous concert until the procession arrived. Prominent radio traders provided powerful sets with loud speakers for use in the procession.

Seven Thousand Miles Radio Tour

IN the extension of British radio trade abroad a splendid example has been set by Messrs. Partridge, Wilson and Co., makers of the "Davenset" radio apparatus, two of whose representatives are now touring the Near East by air. Croydon aerodrome was left on Saturday, March 18th, and by the time the plane returns on Tuesday, April 4th, some seven thousand miles will have been traversed.

The tour is the outcome of the suggestion of an Egyptian buyer who visited the firm some months ago.

Potsdam, 1933

KONIGSWUSTERHAUSEN'S interval signal was changed last week to commemorate the national holiday on March 21st. The new signal is the first bar of the old German folk song: "Ueb'Immer Treu und Redlichkeit," as played by the carillon of the Garrison Church in Potsdam.

The signal is reproduced by means of a simple drum of the "musical box" type.

German Broadcasting Under New Control

HISTORY was made in German broadcasting last week when the Post Office relinquished control in favour of a new Ministry of Propaganda under the direction of Dr. Goebbels, who has appointed Dr. Kruckenberg as sole radio commissioner. We understand that the Post Office continues to collect the licence fees and to operate the transmitters, but the new Ministry of Propaganda takes most of the money derived from licence fees, a small percentage being deducted by the Post Office for expenses.

Broadcasting to Posterity

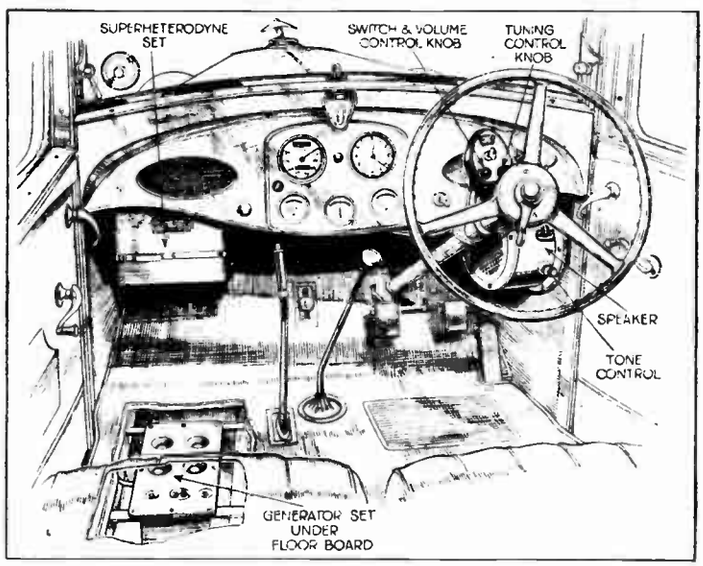
AMONG the recent acquisitions of the British Museum is a matrix of the King's Empire Speech Broadcast on Christmas Day, which has been presented by the directors of the Gramophone Co., Ltd. The matrix is made of nickelled copper, and is placed in a hermetically sealed brass panel. This has been added to the collection of matrices which was begun in 1907, when the H.M.V. presented matrices of speeches by Sir Herbert Tree, Lord Roberts, Sir Ernest Shackleton, and the voices of famous opera stars.

Errors in D.F.

AT the I.E.E. Wireless Section on Wednesday next, April 5th, Mr. J. F. Coales, B.A., will read a paper entitled "Errors in Direction-Finding Calibrations of Steel Ships due to the Shape and Orientation of the Aerial of the Transmitting Station." The meeting opens at 6 p.m. at the Institution.

Incendiarism by Radio

UNNECESSARY excitement seems to have been caused in Belgium over an "experiment" in which a fire was started at Landerbrugge, 7½ miles away from a short-wave transmitter. The receiver in the infernal machine contains a diaphragm which, on the receipt of the signal, closes a switch and heats a filament, setting fire to a piece of highly inflammable material.



THE BUILT-IN CAR SET. Elsewhere in this issue comment is made on the new trend of car wireless in which the receiver is an integral part of the equipment. Above is an *Autocar* sketch showing the Philco Transitone on a Vauxhall car.

All one has to do, apparently, is to tune in Radio Paris or London National some ten minutes before the opening of the transmission, place the infernal machine on the spot where the fire is needed, and retire immediately.

"Dahir" in Morocco

WIRELESS pirates are now given short shrift in Morocco, where a "dahir" has been promulgated by M. Lucien Saint, the French Resident General.

The "dahir" ordains that every wireless manufacturer, merchant, or retailer must henceforth enter in an official stamped and initialled account book the names and occupations of all persons to whom radio sets, components and accessories are sold.

The radio journals in France regard the new move as a direct attempt to "turn traders into informers."

Television Exhibition

THE Fourth Exhibition of Television and Photo-electric Apparatus will take place at the Imperial College of Science, South Kensington, London, S.W.7, on Wednesday next, April 5th, from 6 p.m. to 9 p.m., and Thursday, April 6th, from 3 p.m. to 9 p.m. On the latter date the Exhibition will be opened by Sir Ambrose Fleming, M.A., D.Sc., F.R.S. There will be special short-wave demonstrations of television.

Cards of admission may be obtained from the Hon. Business Secretary, Mr. J. J. Denton, 25, Lisburne Road, Hampstead, London, N.W.3.

Trade Mark: "Bulgin"

OUR congratulations to Messrs. A. F. Bulgin & Co., Ltd., the radio manufacturers, for having secured the registration of their name "Bulgin" as a trade mark. Only on rare occasions does a surname receive this privilege.

In order to substantiate the claim to originality, the company was required to obtain some hundreds of affidavits from wholesalers, dealers and others, stating that the name "Bulgin" had been used exclusively by the firm for the past nine years.

Photo Cells on Show

NO one interested in the many practical applications of photo-electric cells should omit to visit a special display which opened at the Science Museum, South Kensington, on Saturday last.

The cells on view can be roughly classified into those involving only the detection of light and those concerned with its measurement. In the first class the Exhibition offers a number of working models showing the cells used for counting small packages on a conveyor belt, operating burglar alarms and controlling an automatic door-opener. Cells depending upon the intensity of light are seen operating street-lamp switches and measuring the density of factory smoke.

An effective exhibit shows the use of the sound film in the telephone exchange, a recorded voice announcing "Number engaged," and other phrases.

Fighting the Sponsored Programme

OUT of the welter of conjecture about the proposed formation of a new American broadcasting network to compete with the two existing National systems has come a definite announcement by the Atlantic Seaboard Broadcasting Company. According to our Washington correspondent, this company is about to open up a six-station network between New York and Washington. Mr. Israel Leopold, the President, popularly known as Ed Wynn, proposes to add thirty-seven stations south of Washington and forty between Chicago and Seattle.

Interest is centred on Mr. Leopold's declaration that advertising will be confined to not more than thirty words at the beginning and end of each programme. The announcements will refer listeners to newspaper advertising. This is regarded as the first move towards loosening the stranglehold of the sponsored programme.

The Magnetic Circuit

An Important Principle Simply Explained

By S. O. PEARSON, B.Sc., A.M.I.E.E.

IN making calculations on the iron cores of transformers, chokes, and other electromagnetic apparatus, it is necessary to have a working knowledge of the principle of the magnetic circuit, just as in dealing with electric circuits it is essential to know Ohm's law. And it is the fact that a simple magnetic circuit obeys a law very much like Ohm's law of the electric circuit that makes the study and calculation of a magnetic circuit a comparatively simple matter.

WHEN it is realised that the magnetic circuit obeys a law very much like Ohm's law, it will be appreciated how simple the calculations are for the design of iron-cored components. The author defines the magnetic circuit as that part of an electromagnetic device or piece of apparatus which carries the main magnetic flux. It usually consists of a closed iron or steel alloy magnetic path with possibly one or more comparatively short air-gaps.

Let us first consider the most elementary form of magnetic circuit to illustrate the principle. This consists of an iron ring of uniform section wound with a number of turns of insulated wire, as shown in Fig. 1 (a). When a current is passed through the wire or coil the iron becomes magnetised to an extent depending on (*a*) the current in the coil and the number of turns—that is, on the product of amperes and turns (called the ampere-turns); and (*b*) on the properties of the iron ring, or whatever other type of magnetic circuit is involved.

Magnetomotive Force

The magnetic flux, or total number of lines of force, produced round the iron ring bears a definite relationship to the ampere-turns in the same way that a current round an electric circuit bears a definite relationship to the applied electromotive force. The coil carrying the magnetising current constitutes the driving

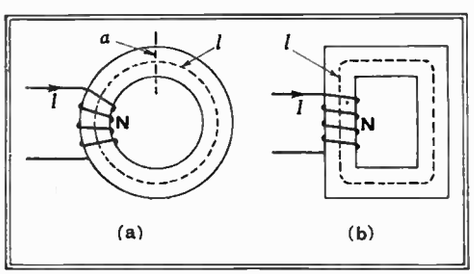


Fig. 1.—(a) Simple ring magnetic circuit, and (b) a common form of rectangular magnetic circuit.

force which sets up and maintains the magnetic flux. This driving force is proportional to the number of ampere-turns, and is called the *magnetomotive force* (M.M.F.) of the coil and current. It corresponds to the electromotive force of the electric circuit.

In the practical system of electromagnetic units the M.M.F. of a coil is not actually equal to the number of ampere-turns of the coil, but to 0.4π times this quantity. The origin of the number 0.4π arises from the numerical definition of magnetomotive force. (It is numerically equal to the work done or energy expended when a unit magnetic pole is moved once round the magnetic circuit. 4π lines of force issue from a unit pole, and one ampere is 1/10th of a C.G.S. unit.) So, if the magnetising coil has N turns and carries a current of I amperes, the magnetomotive force is 0.4π NI, and is expressed in *gilberts*.

Turning now to the properties of the magnetic circuit itself, and considering the simple ring of Fig. 1 (a), the total magnetic flux produced will depend, for a given magnetomotive force, on the dimensions of the ring and on the magnetic "conductivity" or the *permeability* of the iron. In the same way as an electric circuit offers resistance to the flow of a current, so a magnetic circuit offers a resistance to the establishment of a magnetic flux within it. This opposition to the magnetic flux is termed *reluctance*, and is usually denoted by R.

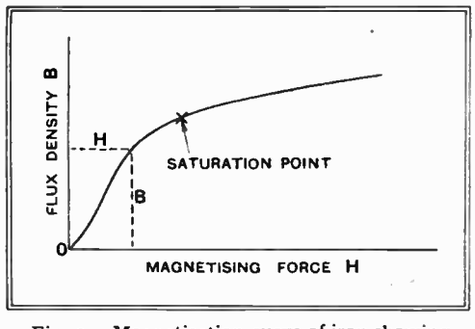


Fig. 2.—Magnetisation curve of iron showing the general shape.

Knowing the magnetomotive force (M.M.F.) of the coil and the value R of the reluctance of the magnetic circuit, the total magnetic flux—that is, the total number of lines of force or *maxwells*—is given by the simple expression $\phi = \frac{\text{M.M.F.}}{\text{R}}$, where ϕ stands for the total magnetic flux. (Compare this with Ohm's law:—$\text{I} = \frac{\text{E.M.F.}}{\text{R}}$).

For a given specimen of iron, the reluctance or magnetic resistance R of the magnetic circuit is directly proportional to the mean length of the circuit, and is inversely proportional to the area of cross-section of the magnetic circuit, taken at right angles to the lines of force. It is assumed that the section is uniform at all points, and in the case of the ring the sectional area is that obtained by cutting radially through one side of the ring. So if l is the mean length in centimetres, as shown in Fig. 1, and a is the cross-sectional area in square centimetres, the reluctance is proportional to $\frac{l}{a}$. The longer the magnetic circuit the greater the reluctance,

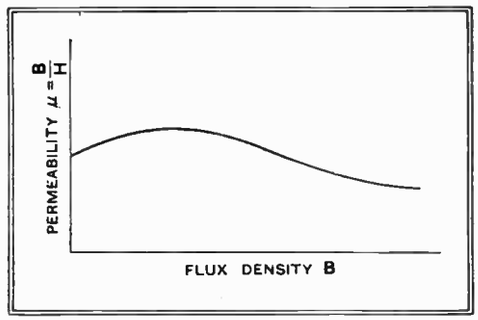


Fig. 3.—General form of the permeability curve of iron and its alloys.

and the larger the section of iron path the lower the reluctance. This, of course, is the same as the relationship between the resistance and dimensions of a conductor.

Permeability

The reluctance depends also on the magnetic properties of the iron itself. Some specimens of iron carry magnetic flux more easily than others, and the degree of "magnetic conductivity," if such a term may be used, is known as the *permeability*, and is unfortunately not constant for even a single specimen of iron; it depends on the degree of magnetisation. To define permeability numerically it is necessary to introduce a new term, namely, *magnetising force*. This is simply the magnetomotive force of the coil divided by the length of the magnetic circuit; in other words, the M.M.F. per cm. being $\frac{0.4\pi \text{ NI}}{l}$, and denoted by H gilberts per cm.

Now, when the magnetising force H is

The Magnetic Circuit—

gradually increased from zero, the resulting magnetic flux *density*, or lines *per sq. cm.* of area of one side of the ring of Fig. 1 rises also, but not in direct proportion. The curve showing the relationship between B and H is usually of the shape shown in Fig. 2. This curve is variously called the "B-H curve," the "magnetisation curve," or the "saturation curve" of the iron. The permeability of the iron, at any particular flux density B, is the ratio B/H at that point, and is usually denoted by the Greek letter μ (mu). Obviously, μ is not a constant ratio, and when plotted against the flux density B gives a curve of the type shown in Fig. 3. It is, however, usually fairly constant over a considerable range of flux densities below the "saturation point." The permeability is really the ratio of the magnetic conductivity of the iron compared with that of air, which is said to have a permeability of unity.

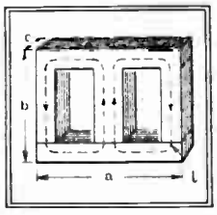


Fig. 4. Shell type of A.C. magnetic circuit. All windings are carried on the central core.

Knowing the permeability μ, the length l, and the cross-sectional area a of a uniform magnetic circuit, the reluctance is given by $R=\frac{l}{\mu a}$. For an air-gap in a magnetic circuit the reluctance is simply equal to the ratio of effective length (or width) to the area of one of the pole faces, since $\mu=1$.

Example.—An iron ring has a mean diameter of 20 cms. and a cross-section of 10 sq. cms. It has a radial air-gap 0.1 cm. wide cut at one point, and is wound with 100 turns of wire. It is required to find the current necessary to produce a flux density of 10,000 gauss (lines per sq. cm.) in the air-gap (and in the iron) if the permeability of the iron at this density is 2,000.

Total magnetic flux $= 10{,}000 \times 10 = 100{,}000$ maxwells or lines. Reluctance of iron portion $=\frac{l}{\mu a}=\frac{20\pi}{2{,}000\times 10}=0.00314$.

Reluctance of air-gap $=\frac{0.1}{10}=0.01$. Thus total reluctance $R=0.00314+0.01=0.01314$. But total flux $\phi=\frac{\text{M.M.F.}}{R}$ lines, whence M.M.F. $=100{,}000\times 0.01314=1{,}314$ gilberts, and this is equal to $0.4\pi NI$, where N is the number of turns and I is the current. Hence the required current is $I=\frac{1{,}314}{0.4\pi\times 100}=10.46$ amperes.

In the case of a composite magnetic circuit in which there are portions with different sectional areas and permeabilities, the reluctance of each part is found separately, and the total reluctance found by addition.

The magnetic circuits of low-frequency chokes and transformers usually take one or other of two forms. The core may be arranged as in Fig. 1 (b), which is known as the core type, or, on the other hand, it may be designed as shown in Fig. 4. This form of magnetic circuit is known as the "shell" type. The magnetic circuit is built up of stampings or laminations of special magnetic steel alloy, such as "Stalloy," the laminations being insulated from each other by means of thin sheets of paper or varnish to prevent, as far as possible, the flow of circulating or eddy currents within the iron itself by the alternating magnetic flux. The flow of eddy currents not only represents energy losses, but results in the lowering of the effective inductance of any winding on the core.

In the case of the shell type all windings are carried on the central core only, and the whole of the magnetic flux passes through this centre limb, dividing into two equal parts, which pass round the two outer limbs, as shown by the dotted lines in Fig. 4. It is common practice for the width of each outer limb, also the upper and lower yokes, to be made half the width of the central limb, so reducing the nett cross-sectional areas of these parts to one-half that of the central core. This arrangement secures the same number of lines of force through each square centimetre of area—that is, the same *flux density*, in every part of the magnetic circuit. This follows, of course, because the flux in each outer limb is just half that in the central core.

When making calculations on a magnetic circuit of this type, it must be remembered that the two outer limbs are in parallel with each other, and that, therefore, the mean length l of one group only of the lines of force must be taken into account when finding the number of ampere-turns. The length l in Fig. 4 can be found very approximately by drawing to scale and measuring, or it may be roughly calculated.

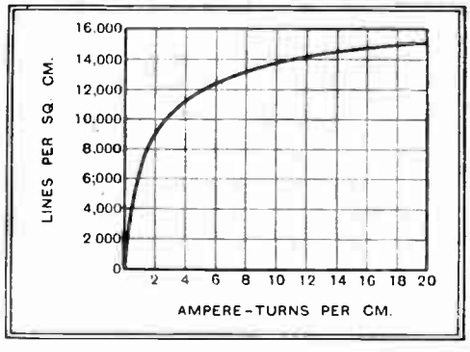


Fig. 5.—Magnetisation curve of silicon-steel alloy stampings.

Now, the makers of transformer stampings usually provide tables or curves showing the number of ampere-turns per centimetre length necessary to produce various flux densities in the particular material, and this greatly simplifies the calculation of the magnetic circuit. Fig. 5 shows a curve for silicon-steel stampings of moderately high permeability; it gives the relationship between ampere-turns per centimetre length and magnetic flux density in lines per square centimetre of area (gauss).

As an example, suppose that the dimensions of the magnetic circuit of Fig. 4 are known, namely, that $a=7$ cms., $b=5.5$ cms., and $c=1.5$ cms. This last is the gross depth across the laminations. The width of the central limb is 1.5 cms., and the widths of the outer limbs and the end yokes are all 0.75 cm. Suppose, further, that the magnetic circuit is made of stampings whose magnetic properties are given by the curve of Fig. 5, and that it is required to find how many turns will be required on the central core to produce a flux density reaching a maximum value of 10,000 lines per square centimetre when an A.C. of 200 mA. value is passed through the coil.

The mean length l of the magnetic path, taken round one side, is about 16.7 cms. From the curve of Fig 5 the ampere-turns per centimetre necessary to produce 10,000 lines per sq. cm. are seen to be 2.8, and so the *maximum* ampere-turns required $=2.8\times 16.7=46.7$. To get the number of turns we must divide this by the *maximum* value reached by the current each half-cycle. Assuming sine waves, the maximum current is $1.414\times 0.2=0.283$ ampere. And so the number of turns required is $46.7/0.283=165$.

How to Find the Inductance

The self-inductance of a coil on a closed iron core is very easily calculated when the relationship between the total magnetic flux and current is known. If ϕ lines of force are produced through the core when the current is I amperes, the self-inductance is $L=\frac{\phi N}{I}\times 10^{-8}$ henrys, where N is the number of turns.

In the present case the gross cross-sectional area of the central limb is $1.5\times 1.5=2.25$ sq. cms. This includes the insulation between the laminations. Assuming the iron itself to occupy about 90 per cent. of the space, the nett section of iron in the centre limb is $2.25\times 0.9=2$ sq. cms. approximately. So, with a maximum flux density of 10,000 lines per square centimetre *in the iron*, the total number of lines is 20,000 at an instant when the current reaches a peak value of 0.283 ampere, the R.M.S. value being 0.2 ampere. The self-inductance with this value of alternating current is therefore $L=\frac{20{,}000\times 165}{0.283}\times 10^{-8}=0.117$ henry.

The inductance is proportional to the square of the number of turns, and so with ten times as many turns, namely, 1,650, and one-tenth of the current (20 milliamps.), the ampere-turns would be the same as before, but the inductance would be 100 times as great—11.7 henrys.

Owing to the fact that the permeability of the iron varies with flux density, the inductance is not a constant, but depends on the R.M.S. value of the current. The presence of a direct-current component modifies the self-inductance value.

BROADCAST BREVITIES

By Our Special Correspondent.

Restlessness at "B.H."

THE power of speech, said the cynic, was given us to conceal thought. Much in the same way the broadcast programmes at the moment are cloaking a restlessness in Broadcasting House which is something more than "that Spring feeling." Inspired hints have reached the daily Press that "certain changes in organisation" are imminent and that these changes "will be obtained by some adjustment of personalities and duties internally."

The Sheep and the Goats

This is certainly a permissible way of describing the separation of the sheep from the goats, but it scarcely tells the whole story. The adjustment consists in dividing the B.B.C. staff into two great divisions, the administrative and the creative. Only now, after many years in setting up the broadcasting machine, is it possible to do this thoroughly.

In the old days the breed was mixed. People were administrative part of the time, when they performed routine duties, and became creative when the programmes demanded it.

One Thing or the Other

It occasioned no surprise that an accountant or librarian should proceed to the studio and sing a song or give a talk. Now we have changed all that and if you serve the B.B.C. to-day you are either a sheep or a goat. You cannot be both administrative and creative. You must be properly labelled.

A Dilemma

The new order is giving rise to some amusing perplexities among the staff. One young lady, whose particular job must go unrecorded, has been described as "administrative" by the Chief of the Section in which she works, while the higher authorities insist that she is creative. This case is typical of many.

What Does it all Mean?

And why the great cleavage? That is the question which causes restlessness. Who would be a sheep, with superior status and hours, if the goat gets better pay?

New Appointments

A "general post" among senior members of the B.B.C. staff seems inevitable. A smaller Control Board is being openly discussed. Sir Charles Carpendale will retire from the Controllership under the age-limit rule in the near future, and his successor must be sought among the "big names" already on the B.B.C. staff.

Despite rumours to the contrary, Mr. Gladstone Murray will probably be back from Canada by the 1st of June.

Down from the North?

The Manchester station has already been a jumping-off ground for promotion to H.Q., so it would not be surprising if Mr. Edward Liveing, the Northern Regional Director, were to take up an appointment soon in Portland Place.

An Empire Ambassador

Within the next few months the Empire Broadcasting service will conclude its experimental period, and the question will be raised of whether the programmes are really appreciated and whether the Dominions and Colonies intend to offer financial recognition. The time is therefore drawing near for Sir John Reith to redeem his recent promise to Mr. Stanley Bruce, the Australian High Commissioner in London, and to send B.B.C. representatives on an Empire tour to establish goodwill and understanding.

It is quite likely that Sir John will send one of his closest associates.

Broadcasting on 3 metres

LEST you should spend all your time searching between 7 and 8 metres for the B.B.C. ultra-short wave transmissions, I ought to disclose the fact that recent tests have been carried out on 3 metres.

As a general rule, however, the engineers confine tests to the 7-8 metre band.

"Ultra Shorts" for Television

The feeling at Broadcasting House is that the "ultra shorts" will be used mainly for television in the near future. Mr. Baird has already secured impressive results with his ultra-short wave transmitter at Long Acre. I was privileged to witness reception at a distance of two miles, and can honestly declare that the image was comparable in clarity with those received over a short land line.

Another National Lecture

AFTER a lapse of many months, another National Lecture is to be heard on April 5th; it will be the first of the year 1933 and the eleventh to be broadcast. The lecturer, Sir Eric Drummond, K.C.M.G., C.B., will have as his subject "The League of Nations." Sir Eric recently retired from the position of Secretary-General, which he had held for thirteen years.

"Limitations of Programme Policy"

IN one sense the B.B.C. Sixth Annual Report is a thrilling document, for it tells of a net revenue of £1,628,738, an increase of £203,388 over 1931. At the same time it is a dull document, oozing bureaucracy at every turn of the page, and only really human when the Governors confess that "the problem of conveying humour purely by oral methods within the limitations of microphone and programme policy has not yet been solved."

I can understand the limitations of the microphone, but what exactly are these "limitations of programme policy"?

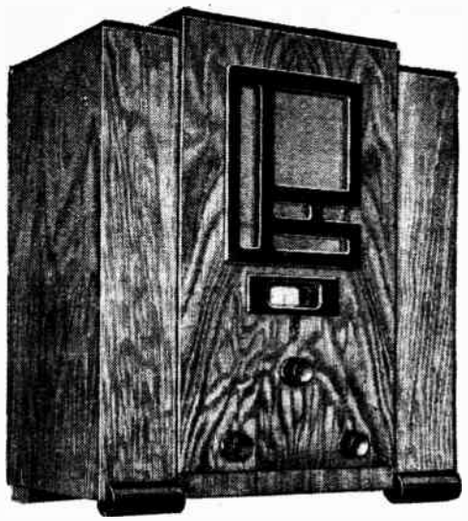
"Chu Chin Chow"

"CHU CHIN CHOW" is to be broadcast on the National wavelength on April 17th and to Regional listeners on April 18th. This radio version of Oscar Asche's musical tale of the East has been made by Henrik Ege, and the producers will be Harry S. Pepper and John Watt.

RADIO DRAMA IN ITALY. Recent suggestions that radio drama is moribund find no support in Italy, where plays of all types find favour with listeners. Above is a lively scene in a drama broadcast recently from Turin.

A Correspondence Record

The first announcement that the B.B.C. contemplated a studio performance of "Chu Chin Chow" resulted in the setting up of an unusual record in Broadcasting House correspondence, namely, an avalanche of applications for parts from members of the original cast and of numerous touring companies. The statement published recently that the play is to be revived on the West End stage will not affect the arrangements already made by the B.B.C., for the leading part in the broadcast version is to be taken by Oscar Asche.



Bush Q.P.P. Battery Receiver

A Four-Stage Set with All Modern Features

BATTERY sets are at present very much in the limelight and are fast becoming just as interesting technically as their mains-driven counterparts. Those who cater for listeners without a mains supply are realising that there is a distinct demand for the more ambitious type of set.

The Bush Q.P.P. model differs mainly from the majority of other up-to-date battery sets in that it includes an intermediate L.F. amplifier. Although it is possible to drive a quiescent push-pull output stage direct from the detector, there is never very much margin of safety in such an arrangement; the extra valve undoubtedly provides this margin and at the same time allows the designer greater scope in planning his L.F. inter-valve couplings. It also gives a very acceptable extra measure of L.F. amplification, and certainly increases the effective range of the receiver.

A Flexible Set

There are a number of details in the circuit arrangement to which attention should be directed. Although the accompanying diagram shows a plain capacity-coupled input filter for the medium band, the wiring is so disposed that a certain amount of "top-end capacity" coupling is introduced as well; this helps to prevent falling off in sensitivity at the lower end of the band. On long waves an extra coupling condenser between the high-potential ends of the coils becomes operative.

Another worth-while feature, which increases the flexibility of the set, is the provision of alternative filter couplings; a parallel coupling condenser may be placed in circuit by means of a plug-and-socket connection when extreme selectivity is needed.

Plain tuned anode coupling is used for the H.F. stage, but the combined reaction-sensitivity control system, which is operated by a single knob, is unconventional. Reaction is applied by variation of a resistance, which, as it is reduced in value, simultaneously brings about a reduction in the value of negative bias on the H.F. valve grid. By making the resistance contact brush run off the resistance element at the extreme end of its travel, the bias battery circuit is interrupted without the need for an extra on-off switch. The L.T. battery switch is linked mechanically to the spindle of this variable resistance, and so the operating knob performs three distinct functions.

In the parallel anode circuits of the detector are two 600-ohm resistances, both of which are associated with the reaction system. The first, in series with the by-pass condenser, ensures the maintenance of a sufficiently high H.F. potential on the anode, while the second, in the control circuit, helps to prevent L.F. howling.

After the detector comes a conventional resistance capacity-coupled L.F. amplifying valve, with an H.F. stopping resistance in its grid circuit. The succeeding push-pull stage is coupled by a parallel-fed transformer, the usual anti-parasitic resistance being inserted in the grid return lead. Separate feed leads for the auxiliary grids for each of the high-efficiency pentodes are brought out to the H.T. battery.

Tone control is provided by the simple expedient of fitting a variable instead of a fixed resistance in the compensator circuit, which is shunted across the output transformer primary. This control, together with the others which do not need constant adjustment (external aerial circuit trimmer and filter coupling sockets), are mounted at the back of the receiver.

As befits a set of such aspirations, construction is everywhere beyond criticism, both inside and out, and there is no evidence of skimping. Similarly, the cabinet is soundly made, the design is well conceived and pleasing to the eye.

The valves in the quiescent push-pull output stage are properly matched by the makers, the appropriate auxiliary grid voltages for each valve being recorded in the instruction book. Full instructions for carrying out this operation when valve replacements become necessary are given, and in the event of failure of one of the output valves the makers undertake to rematch the remaining valve. No difficulty should, therefore, arise on this score.

FEATURES

General.—*A self-contained 4-stage receiver (5 valves) for battery operation with an external or built-in plate aerial. Permanent-magnet moving-coil loud speaker; provision for gramophone pick-up.*

Circuit.—*Input band-pass filter; one H.F. stage and grid detector, followed by resistance- and transformer-coupled L.F. stages. Quiescent push-pull output.*

Controls.—*(1) Ganged tuning. (2) Wave range switch. (3) Combined on-off and sensitivity controls. (4) Tone control.*

Price.—*£14 19s. 6d.*

Makers.—*Bush Radio, Ltd., Woodger Road, Shepherd's Bush, London, W.12.*

It is difficult to decide whether sensitivity or selectivity is the most impressive feature of the Bush set. On both counts its performance is well above the average, and is distinctly better than that of many 1-v-1 mains set. In cases where interference is troublesome it is sometimes necessary to work with the looser of the two alternative filter couplings, but only under exceptionally unfavourable conditions. This method of artificially enhancing selectivity, though open to the usual objection that it introduces a slight falling-off in range, is distinctly better than most of the competing methods.

Low H.T. Consumption

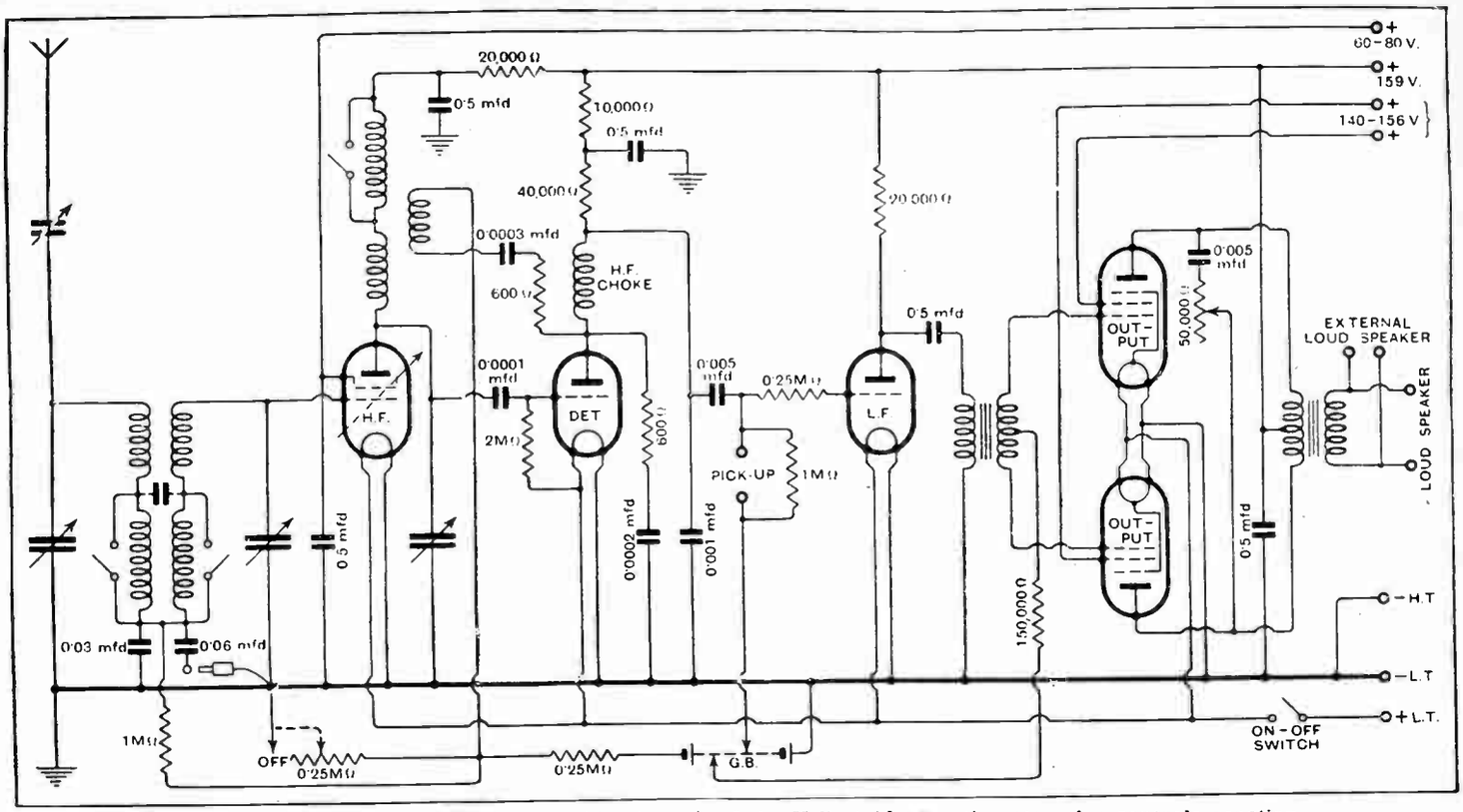
The combined sensitivity-reaction control, which has already been described, was found to work extremely well. Reaction begins to operate at exactly the right point—that at which the H.F. valve bias approaches optimum.

There is no need to sacrifice range for selectivity by using a short aerial, but the set will work very satisfactorily with one if necessary. Indeed, its sensitivity when operated with the built-in plate aerial is sufficient for those who do not require long-distance reception. Worked in this way, the set is, of course, entirely self-contained, except for an earth connection.

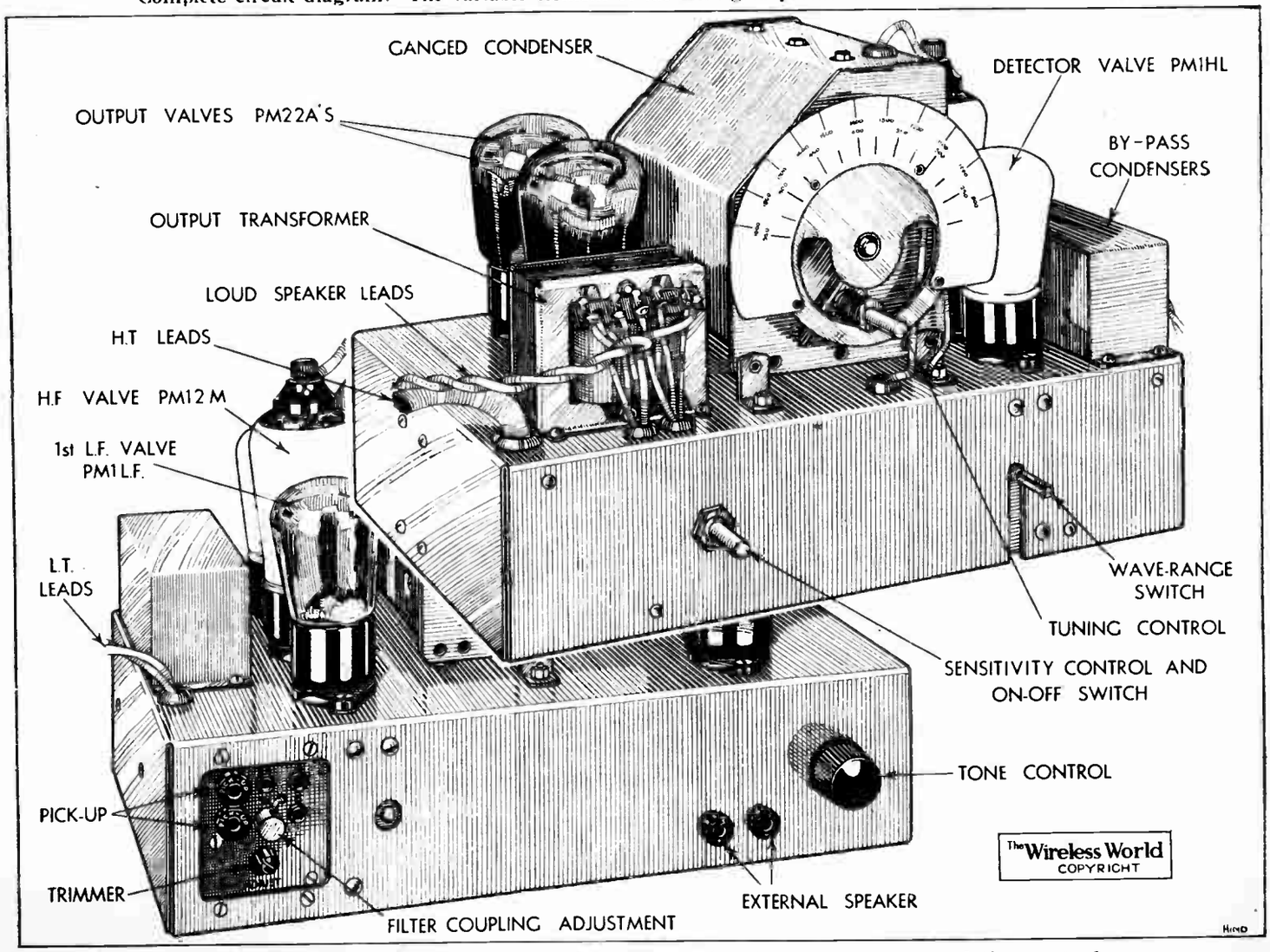
Without any sign of overloading, reproduction at a level that would have been considered impossible a few short months ago is obtainable for a very modest anode current consumption. With regard to quality, the general balance is good, with a fully adequate output in the upper register. There is no obtrusive bass resonance, but perhaps a trace of over-emphasis is given to a band of frequencies between about 100 and 200 cycles. This can seldom be detected, except when listening to certain forms of speech. Piano music—an exacting test—is reproduced exceptionally well.

Economy in anode current at every point has obviously been studied. In the quiescent condition total consumption amounts to about 7½ milliamperes; under working conditions the average current is about 8½ milliamperes.

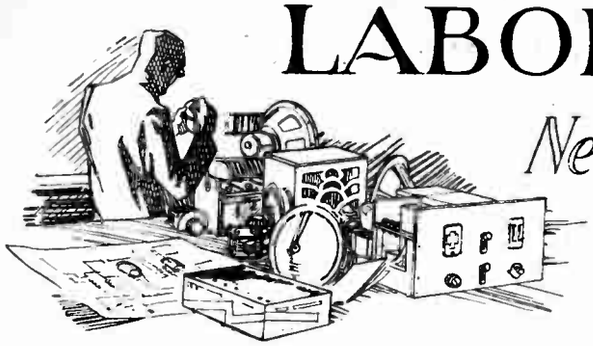
An Economical Battery Set Giving Ample Volume



Complete circuit diagram. The variable element of the H.F. grid potentiometer also controls reaction.



Two views of the Bush Q.P.P. receiver chassis showing arrangement of the controls.



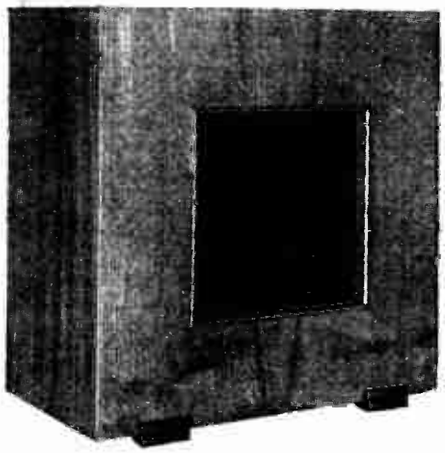
LABORATORY TESTS

New Radio Products Reviewed

LOCKWOOD LOUD SPEAKER CABINETS

PARTICULARLY well-made loud speaker cabinets, the smallest of which provides ample space for accommodating the majority of moving-coil loud speaker chassis now in general use, are obtainable from the Longley Radio Manufacturing Co., 63, Longley Road, Harrow, Middlesex, at prices which are undoubtedly most reasonable considering the workmanship and the nature of the material employed.

The specimen examined and illustrated here is listed as Type S2, a walnut-finished model costing 22s. 6d., with inside dimensions of 14in. × 14in. × 7⅜in., and having a silk-covered front opening 7½in. square. Behind this is a removable baffle board ⅜in. thick, in the centre of which is a circular hole 6¼in. in diameter. Since the cabinet is constructed from ⅝in. wood the loud speaker is mounted on the equivalent of a



Lockwood walnut-finished loud speaker cabinet model S2.

board ⅛in. thick, which should go a long way towards eliminating all objectionable box resonance.

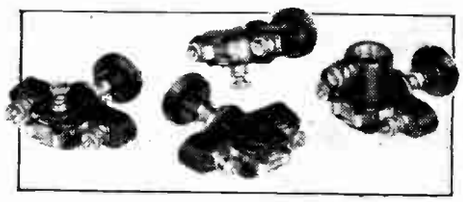
The back, which is removable, is cut from ¼in. wood, and has a number of wide vertical slots, silk-covered to prevent the ingress of dust, and so offers little or no impedance to the sound waves given off from the back of the cone. A mahogany cabinet of equivalent size is available at the same price, while one in oak costs 21s.

There is a larger model made, measuring 17in. × 17in. × 9½in. inside, which in oak costs 28s. 6d., and finished in either walnut or mahogany 30s. each.

"BUSCO" SWITCHES

ALTHOUGH in general design "Busco" switches remain much the same as hitherto, sundry refinements have been introduced into their latest models; also, a few new types are now available. That no marked changes have been deemed necessary points to the soundness of the design as originally conceived, and the particular style of non-rotating and self-cleaning contacts would be difficult to better.

A neat bakelite moulding is employed for the body, the one style serving for all models. The switch is compact and easy to fit, being provided with a single-point fixing and a shoulder and insulating washer for mounting on metal panels.



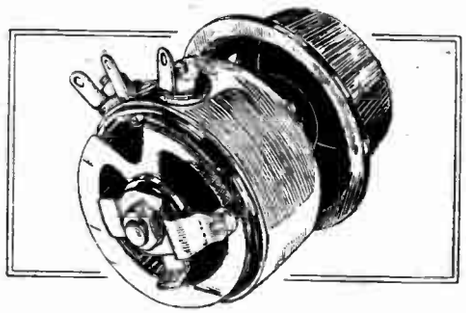
Selection of the latest "Busco" switches.

There are five different types made—a plain battery on-off switch, a three-point model, a single-pole change-over model, a radio-gramophone switch with a long extension rod, and, finally, a fuse-switch embodying a small lamp holder which enables a lamp-type fuse to be included in the H.T. negative battery lead as a safeguard for the valves. The first mentioned costs 1s. 3d., the three-point and change-over types 1s. 6d. each, and the fuse switch 2s. 6d. Fuse bulbs cost 4½d. each. The price of the radio-gramophone model is 3s.

The makers are Busby and Co., Price Street, Birmingham.

PREH POTENTIOMETERS

A NEW range of variable resistances and potentiometers of the type in general use as volume controls are now obtainable from the Preh Manufacturing Co., Ltd., Broadwater Road, Welwyn Garden City. The potentiometers are available either wound to a uniform resistance throughout or



Preh 10,000-ohm wire-wound volume control potentiometer.

fitted with a logarithmic-type resistance element. All models are wire-wound and contact is made by means of a squash-type rocking disc. This is pressed on to the resistance track so that the fine wire is not subjected to a lateral strain, and is unlikely to develop defects due to this cause.

These models are very compact, measuring 1¼in. in diameter and 1in. overall in depth. The resistance is protected by a metal casing to which is attached the single-hole fixing bush. They are rated to handle up to two watts.

We have tested some specimens and find them entirely satisfactory; the measured resistances agree well with the marked values, and they are perfectly silent in operation. Preh potentiometers are made in all the usual values, and the price is 5s. 6d. each.

These components can be obtained fitted with a quick action on-off switch suitable for mains use.

GARRARD RADIO-GRAMOPHONE UNITS

TO facilitate the conversion of existing radio receivers to radio-gramophones, the Garrard Engineering and Manufacturing Co., Ltd., Newcastle Street, Swindon, have introduced a new series of radio-gramophone

Garrard radio-gram. unit with No. 30 spring motor.

units consisting of a gramophone turntable and motor mounted, complete with the Garrard pick-up and tone-arm, on a bronzed and lacquered rectangular unit plate. All the units are fitted with the Garrard automatic stop and two needle cups.

The electric type can be supplied with the "Universal," No. 202A induction, or A.C.4 induction motors, the prices being £6 8s. 6d., £4 1s. 9d., and £3 15s. respectively. For battery-operated sets, and particularly in view of the introduction of Q.P.P. and class "B" output, units with spring-type motors are also available. The price with the No. 10B double-spring motor is £4 1s. 9d., and with the No. 30 motor £3 3s. A volume control can be supplied with any of the above models at an extra charge of 5s.

The pick-up unit is the same as that supplied with the Garrard record changer unit, and a test report, including the characteristic curve, was given in the November 18th, 1932, issue of this journal. Incidentally, the record changer unit is now available with a "Universal" motor for A.C. or D.C. mains, the price being £10 17s. 6d.

Garrard unit with A.C.4 induction motor.

It has also been decided to market the pick-up and tone arm as a separate unit, the price being 32s. 6d., or with volume control 37s. 6d.

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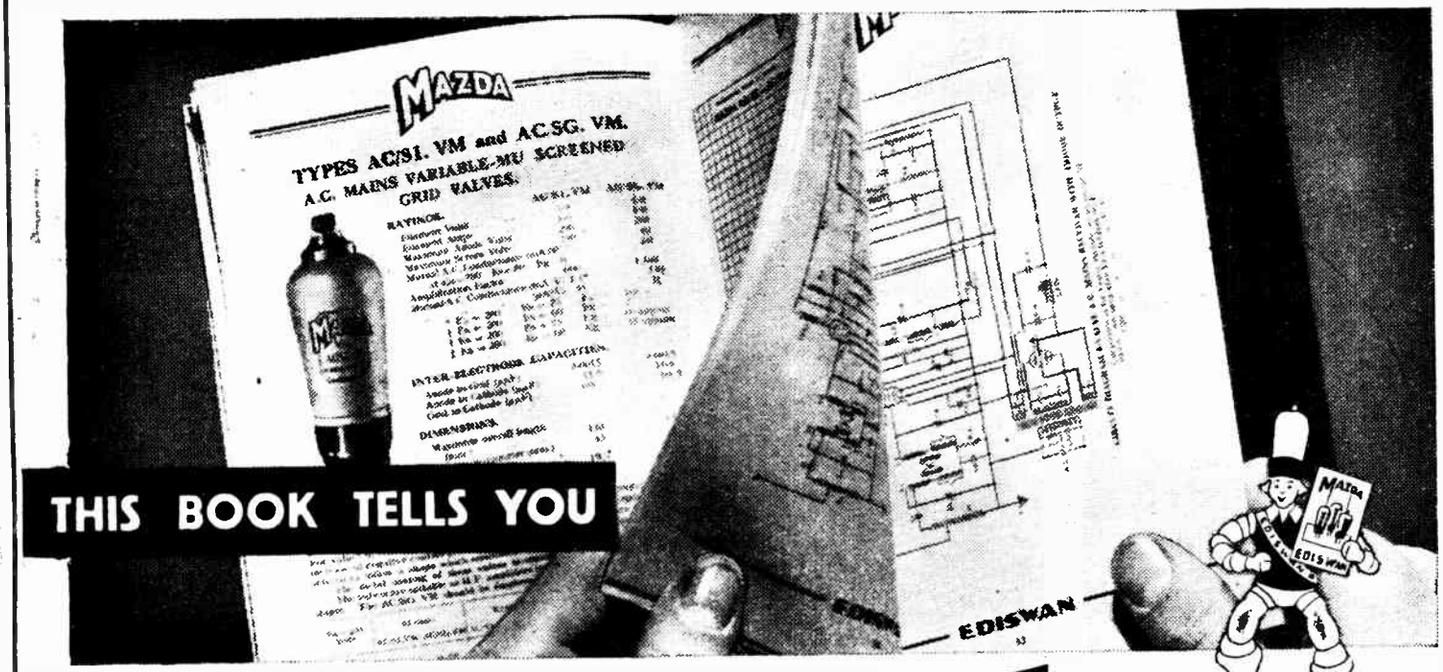

"The Book of the Mazda Valve," No. R.782, is a mine of useful information about valves in general and Mazda Valves in particular. It contains facts and figures, circuit diagrams, component values, characteristic curves—in fact, all the valve user wants to know about valves. Send for your FREE copy to-day—or ask your dealer for one.

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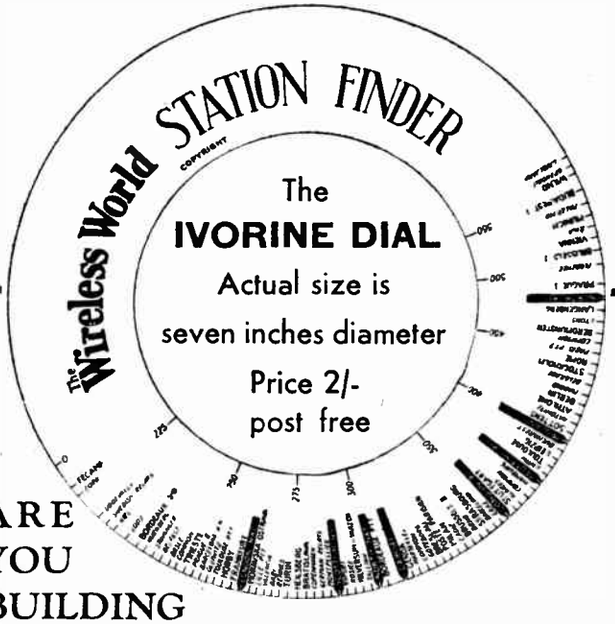

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APPLEBY'S, Central London Office, 46, Bloomsbury St., New Oxford St., London, W.C.1. Museum 8195. [1833

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CLEARANCE Stock A.C. Mains Receivers, Amplion Six and Philips Types 930A, 2514, 2531; originally 23 guineas; yours for 10 guineas each.—A. Phillips, Grayshott, Hindhead, Surrey. [2277

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EDDYSTONE S.G. Four, short-wave, all mains, 240 A.C., additional coils for medium broadcast, little used; cost £35, offers.—Clements, 11, Manton Av., Hanwell, W.7. [2286

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11 Guineas.—Six-Sixty Battery 3, M.C., complete, unused, just delivered; offers.—37, Wilberforce Rd., Liverpool. [2315

1932 McMichael D.C. Mains Three, with Baker Super Power M.C. speaker, cost £28, new condition; £15.—58, Hain Rd., Worthing. [2318

MODERN D.C.3, exact to specification, with valves, no cabinet or speaker, very good; £7/10; well below cost of components. Lawnds, The Cottage, Old Lenton, Nottingham. [2330

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VORTEXION.—Transformers made to your specification.

VORTEXION.—Brown and Salter, 182, The Broadway, Wimbledon. Tel.: Liberty 2814. [2034

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SERADEX Transformers for A.V.C. Monodial 5-watt Chassis, terminal type; £1/15; as specified.

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WE Can Supply Brand New Complete Gramophones, London made cabinets, at less than the cost of cabinets; ideal for converting to radiograms; 28 models to choose from; 52/6 to £10; illustrated list free.—Rodley's, Ltd., Canal Rd., Bradford. [1786

CLEARANCE Lines in Cabinets for Radiograms, mains or battery sets, loud-speakers, etc. (no catalogues), end of season, all prices reduced to clear stock.

H. L. SMITH and Co., Ltd., 287-9, Edgware Rd., W., and Charles and Co., 27, Lewisham High Rd. [2266

HANDSOME Radiogram Cabinet, in beautiful figured walnut or mahogany, £7/7 model, to clear, £3/15; also table models, 16/-; on approval.—Rochester Cabinet Co., 9a, Witcher Place, Rochester Mews, N.W.1. 'Phone: Gulliver 2594. [2303

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B.T.H. R.K. Moving Coil Speakers, guaranteed new, unused, manufacturers' surplus; original price 6 guineas, highly sensitive and wonderful tone response, will handle up to 10 watts output, available for 6v., 100v., 200v., 30/-; also A.C. models, £2/10; carriage paid, c.o.d., or cash with order; send for list of other unused bargains.—Seekamp, 46, Farringdon St., London, E.C.4. [1425

AM perfectly satisfied with (W type) speaker. . . . Many thanks for your promptness and fair dealing. —S. Y. (Worcester).

18/9—W type P.M. moving coil speakers, originally 49/6; reputable manufacturer's 1933 surplus; carriage paid; cash or c.o.d.—Streete, 84, Riversdale Rd., Highbury, N.5. [2274

MAGNAVOX New British Speakers, surplus, and boxed; please state whether for push-pull, power or Pentode output when ordering.

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MAGNAVOX D.C.142, cone 8½in. diameter, details above, 29/6; fitted into magnificent solid walnut corner pedestal cabinet, excellent for extension, room for Monodial power unit if required; price 49/6.

ROLA American Model K, 2,500, triode transformer, 10½in. cone; 29/6; Magnavox Magna models available; enquiries invited.

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PARTICULARS Free of Any Model.—'Phone or telegram, Streatham 8209, or write, James, 49, Arragon Gardens, Streatham, S.W.16. Callers strictly by appointment only. [2292

B.T.H. R.K. Senior P.M. Moving Coil Unit; £2/15.—Sevior, 37, Terminus Rd., Eastbourne. [2285

FERRANTI M.1; £4, or near offer; heard evenings.—Jasper, 3, Eaton Rise, Ealing, W.5. [2287

A.C. Kolster-Brandes M.C., with rectifier; 22/6.—Porter, 27, The Pavement, S.W.4. [2304

CHAL-ELECTRIC Offers Brand New Set Manufacturers' Brand New Guaranteed Surplus (30 in all left); Rola's F6 7½in. cones, with power Pentode transformers, 90-130 volts (2,500 ohms), 110-175v. (2,000 ohms), 200-250v. (6,500 ohms), listed 55/-, at 18/- each; F7 models, as above, 9in. cones, listed 46/6, at 25/-; permanent magnets, F6 P.M., 7½in. cones, listed 49/6, at 28/-; F7 P.M. 9in. cones, listed 60/-, at 32/-; ask for quotations, dust compensated; cash with order, or c.o.d., carriage paid.—Chal-Electric, 6, Conduit St., London, W.1. [2325

30/-!!—B.T.H. R.K. moving coil speakers, 6in. cone, new and unused, guaranteed; these speakers are type as used in cinema sound equipment; suitable for public address work; weight 30lb., and are vastly superior to cheap speakers now on the market, 100 volts, 150 volts, and 200 volts D.C.

27/6!!—6v. D.C. speaker, as above; £2/7/6, speaker as above, for 100-250 A.C.; Epoch Super Cinema speakers, £5/10.

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T.C.C. 4+4 mf. brand new condensers, 1,700 working, massive Standoff insulators; 25/-.—19, John Bright St., Birmingham. [2289

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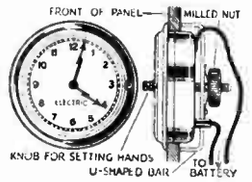

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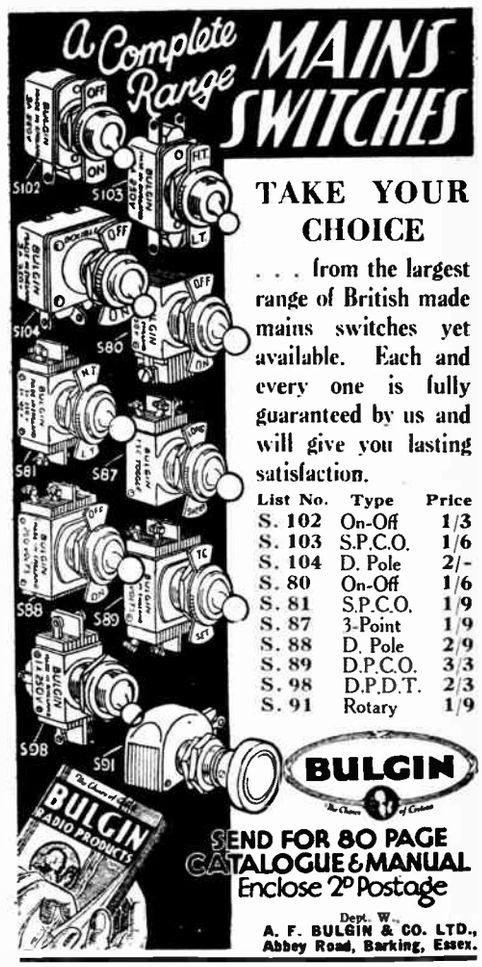

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And NOW . . . . . The UNIVERSAL AVOMETER
which covers the thirteen D.C. ranges of the Avometer, also four ranges of A.C. voltages and three of A.C. current for use on 50 cycles.

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THE AVOMETER

REGD. TRADE MARK.

AUTOMATIC COIL WINDER & ELECTRICAL EQUIPMENT CO., LTD.,
Winder House, Douglas Street, London, S.W.1.
Telephone: Victoria 3405/3406.

Handbook of Technical Instruction for Wireless Telegraphists. (Fourth Edition.) By post, 25/9.

Components, etc., for Sale.—Contd.

PREMIER SUPPLY STORES Offer the Following Brand New Goods at a Fraction of the Original Cost; all goods guaranteed perfect; carriage paid over 5s., under 5/- postage 6d. extra (Ireland carriage forward).

PREMIER Eliminators, input 200-250 volts, 40-100 cycles A.C., incorporating Westinghouse metal rectifiers, output 250 volts at 60 milliamps, 80 and 120 volt taps, 42/6; with 4 volts 4 amps. L.T. (c.t.), 7/6 extra.

PREMIER Eliminators, output 150 volts at 30 milliamps, 80 and 100 volt taps, with 4 volts 3-4 amps. (c.t.). L.T., 37/6; with trickle charger, 42/6.

PREMIER Eliminators, output 120 volts at 20 milliamps, 80 and 100 volt taps, 27/6; with L.T. trickle charger incorporated, 35/-.

D.C. Eliminators, output 120 volts at 20 milliamps, 80 and 100 volt taps, 15/-; larger model, output 200 volts 50 milliamps, 80 and 120 volt taps, 25/-.

ACCUMULATOR Chargers, 200-250 volts A.C., all incorporating Westinghouse rectifiers: 2, 4, and 6 volts at ½ amp., 17/6; 4 and 6 volts at 1 amp., 22/6; up to 12 volts at 1 amp., 27/6; up to 12 volts at 1.5 amps., 30/-; up to 6 volts at 2 amps., 35/-; up to 6 volts at 3 amps., 39/6; up to 12 volts at 3 amps., 52/6; 3 separate 12 volt 1 amp. circuits, 75/-.

T.C.C. Condensers, 250 volts working, 4×4×1 mfd., 5/-; 300 volts working, 4×4×2×2×2 mfd., 7/-; 375 volts working, 6×4×2×2×2 mfd., 10/-; 300 volts working, 4×4×2×1 mfd., 6/-.

400 Volts Working, 3 separate 4 mfd. condensers, 8/6; with 2 separate 1 mfd. condensers, 2/- extra.

WESTERN ELECTRIC, 400 volts working, 0.01+0.01 mfd., 1/-; blocks 4×2×2×2×1+0.09 mfd., 400 volts working, 6/-.

FERRANTI Condenser Blocks, 3C0 volts working, 4×4×2×2 mfd., all entirely separate; 10/-.

T.C.C. Condensers, 750 volts working, 2 mfd., 4/-; 750 volts working, 4 mfd., 6/-; 4 mfd., 400 volts D.C. working (300 volts A.C. working), 4/-; 4 mfd. electrolytic condensers, 440 volts working, 3/-; 8 mfd., 3/3.

WESTERN ELECTRIC Condensers, 250 volts working, 1 mfd. 6d., 2 mfd. 1/-; 400 volts working, 1 mfd. 1/-, 2 mfd. 2/-.

POLAR 3-gang Variable Condensers, dub type, fully screened, split end vanes and disc drive, 0.0005; 10/-.

ORMOND All-brass 2-gang Condensers, semi shielded, 0.0005, 5/-; Amsco 3-gang 0.0005 condenser, with trimmers (listed 30/-), our price 7/6; Polar 0.0005 and 0.00035 Bakelite dielectric condensers, with knob, 1/-.

BRITISH RADIOPHONE 4-gang Condensers, with trimmers, fully screened; 16/-.

PREMIER Mains Transformers, all guaranteed, terminal connections, input 200-250 volts, 40-100 cycles, output 135 volts 80 milliamps, for voltage doubling, 8/6; 4 volts 4 amps., centre tapped, L.T., 2/- extra; Westinghouse rectifier for above, giving 180 volts at 30 milliamps, 8/6.

PREMIER Mains Transformers, output 250-0-250 volts at 60 milliamps, 4 volts 1 amp., 4 volts 2 amps., and 4 volts 3-4 amps. (all c.t.), with screened primary, 15/-.

PREMIER Mains Transformers, output 400-0-400 volts at 100 milliamps, 4 volt 4 amp., and 4 volt 2.5 amp.; 18/6.

H.T.8 Transformers, with 4 volts 3-5 amps. L.T. (c.t.), with screened primary, 15/-; with Westinghouse rectifier, 25/-.

H.T.9 Transformers, output 230 volts 200 milliamps, with 4 volts 4 amps. (c.t.), with screened primary, 15/-; with Westinghouse rectifier, 26/-.

H.T.10 Transformers, with 4 volts 4 amps L.T., 15/-; with rectifier, 27/- (output 200 volts at 100 milliamps).

PREMIER Mains Transformers.—12 volts 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps. and 4 volts 2 amps., 8/6; 14 volts 4 amps., 12/6; 4 volts 3 amps., 7/6; 4 volts 5 amps., 8/6; 22 volts 1 amp., 10/-; 6 volts 2 amps., 7/6.

MAINS Transformers, output 350-0-350 volts, 90 milliamps, 4 volts 3 amps. (c.t.), 4 volts 2 amps. (c.t.), 12/6.

AMPLION Mains Transformers, input 100-250 volts, output 350-0-350 volts 120 milliamps, 4 volts 5 amps., 4 volts 2 amps., and 6 volts 1 amp. (all c.t.); 17/6.

AUTO Transformers, 110/200-250 volts or vice versa; 60 watt, 7/9; 100 watt, 10/-; 180 watt, 15/-.

PHILIPS 323 Valves for L.T. Charging, 5/6; transformer for same, 15/-.

SPECIAL Offer of Mains Transformers, manufacturers' type, any input, output 250-0-250 volts 60 milliamps, 4 volts 1 amp. (c.t.), 4 volts 3 amps. (c.t.), 8/6; 180-0-180 volts 40 milliamps, 4 volts 1 amp., 4 volts 2 amps., 4/6; 175 volts 50 milliamps, 4 volts 4 amps., 4 volts 1 amp., 5/6; H.T.3, with 4 volts 3-4 amps., 3/6; with rectifier, 18/6.

MULTI-RATIO Output Transformers, 6 taps giving 15 different ratios, 7/6; Pye chokes, 20 or 32 henrys, 4/-.

PREMIER Chokes, 40 milliamps 25 henrys, 4/-; 65 milliamps 30 henrys, 6/-; 150 milliamps 30 henrys, 10/6.

SMOOTHING Chokes for Series Connected Filaments from D.C. Mains, carry 1 amp., 7/6; H.M.V. 110 henry chokes (100,000 ohms resistance, carry 10 m.a.), 3/6.

AMPLION High Inductance Chokes, resistance 2,500 ohms, 80 henrys, 60 m.a.; 5/6.

SPECIAL Offer of Wire Wound Resistances, 4 watts, any value up to 10,000 ohms, 1/-; 8 watts, any value up to 15,000 ohms, 1/6; 15 watts, any value up to 50,000 ohms, 2/6; 25 watts, any value up to 50,000 ohms, 3/6; 50 watts, any value up to 50,000 ohms, 5/-.

(This advertisement continued in third column.)

OSTAR-GANZ

HIGH VOLTAGE MAINS VALVES

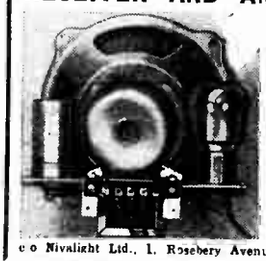
These valves work direct off either A.C. or D.C. supply. No transformers or resistances required. Remarkably free from mains hum.

A.520. G.P.	17/3	E.G.50. 50 m.a. Half Wave	14/6
W.310. R.C.	17/6	E.G.100. 125 m.a. do.	15/6
U.920. L.F. Power	17/3	N.G.40. 40 m.a. Voltage Doubler	26/6
L.1525. Super Power	18/-	V.G.45. 45 m.a. Full Wave	42/-

FREE BLUE-PRINT with first order.

UNIVERSAL

RECEIVER AND AMPLIFIER KITS



With British Components. Work off either A.C. or D.C.

2-v. Receiver with Rectifier - £6 10 0

3-v. Receiver with Rectifier - £7 9 0

2-v. Amplifier with Rectifier - £4 4 0

3-v. Amplifier with Rectifier - £5 5 0

Latest type Energised Moving Coil Loudspeaker, complete with Ostar-Ganz Valves £2 5 0

Write for leaflet.

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Sole representative for Great Britain.

c/o Nivalight Ltd., 1, Rosebery Avenue, E.C.1. Tel.: Clerk 1227.

Gripplesheil Aerial Brackets

are simple and economical to install and avoid unsightly poles. Write for leaflet to:—

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EVERY PART FOR EVERY CIRCUIT — LEONARD HEYS — BLACKPOOL

Your Quiescent Push-Pull, Monodial, Station Finder, S.T.400, New Century Super, Melody Ranger *and all other radio Requirements can be obtained* QUICKLY *from*

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WILL TELL YOU HOW GOOD THEY ARE

Hear PERFECT radio through a PERMAG REPRODUCER

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PARIMA SELENIUM CELLS

FOR ALL PURPOSES.

Parima Light-Sensitive Resistances are constant mechanically strong, moisture proof and exceedingly sensitive. Fully guaranteed for 12 months. Prices from 5/-

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A RELIABLE ADJUSTABLE MICROPHONE at LOW PRICE

Perfect Speech and Music without distortion.

The Wilson Hand Microphone can be adapted to many uses with first-class results. Price reduced to 6/6 each
Screened 100 to 1 Transformers ..... 6/- each

Also Manufacturers of Microphone Amplifiers, Electric Bowl Heater-Cookers, Irons, etc. Write for List.

THE IMPROVED WILSON MICROPHONE & ELECT. Co. Ltd.
Prince of Wales Terrace, LONDON, W.4.

Components, etc., for Sale.—Contd.

(This advertisement continued from first column.)

WIRE Wound Potentiometers, 15,000 ohms, 1/6; Centralab potentiometer volume controls, 50,000 ohms, 2/-; Colverstats, logarithmically wound potentiometers, 6,000 ohms, 1/9.

HEAVY Duty Variable Resistances, slider type, wound on porcelain, 2,000 ohms, 1·4 amp., 5/-; 500 ohms, 1·2 amp., 5/-.

ROLA 2,000 and 6,500 ohms, type F6, 17/6; Rola F5P.M. permanent magnet, 20/-; F6P.M. permanent magnet, 31/- (all with pentode output transformers).

AMPLION Moving Coil Speakers, type E.M.644, dual fields 2,500 and 5,000 ohms (100-250 volts), with output transformer, 12/6; ditto, 200-250 volts A.C., 22/6.

B.T.H. Induction Type (A.C. only) Electric Gramophone Motors, 100-250 volts, 30/- complete; double spring gramophone motors with 12in. turntable, 15/- complete.

SPECIAL Offer of Kolster Brandes Electric Gramophone Motors, all complete with turntables, list price £5; No. 1 super, A.C., 100-250 volts, 35/-; No. 2 super universal, 100-250 volts, A.C. or D.C., £2; automatic stops.

EKCO Microphones, complete with transformer, a really fine job, 18/6; wire wound Clarostat potentiometer, 50,000 ohms, 2/6.

WESTINGHOUSE Metal Rectifiers, 120 volts at 20 m.a., 6/6; 180 volts at 30 m.a., 8/6; 8 volts at 0.5 amp., 6/6; 250 volts at 60 m.a., 10/-; 6 volts at 1 amp., 9/6; 12 volts at 1 amp., 12/6; 6 volts at 2 amps., 20/-; 200 volts at 100 m.a., 11/-.

ALL the Following Lines, 6d. each, or 5/- per doz. assorted: Trimming condensers, shielded S.G. or pentode leads; Polymet 0.01 condensers; 2ft. lengths of screened wire; 5-pin valve holders; Crabtree sunk 5 amp. switches; T.C.C. 0.1 condensers; 0.5 condensers.

AMPLION Six Receivers, listed £21, complete with valves, 200-250 volts A.C.; 9 guineas.

FOR Callers Only: The following valves, guaranteed as new: DC2SG, VDS, DCSG, 9/6 each; U1560/250, 7/6.

ALL Orders to 20-22, High St., Clapham, S.W.4. Macaulay 2188. Closed 1 o'clock Wednesdays. Open to 9 o'clock Saturdays. Nearest station Clapham North Underground. [2324

COSMIC RADIO SERVICE, 23, Water St., Liverpool.—Ferranti M3 P.M. speaker, new, £1; Ormond Giant chassis, £2; Ferranti A.F.5C, 18/-; A.F.3, 11/6; A.F.4, 8/-; Polar 3x, 0.0005, less trimmers, unshielded, 7/-; postage extra. [2276

MOVING Coil Milli-Ammeters, 0-50, 10/6 each; 2 milliamps and 120v, 17/6 each; other ranges in stock; alterations, repairs of every description.—The Victa Electrical Co., 47, High St., Battersea, S.W.11. [0355

MIHALY Pullthrough Soundheads, complete with optical systems; splendid condition; £5/10 each.

BROWNS First Stage Amplifiers, in metal cases, £1/5 each; Voight cinema speakers, 200v. D.C. field, £3/10 each.

MIHALY Portable Projector, complete with soundhead, £7/10; Igranic twin electric turntable, in oak case, £7/10.

BROWNS A.C. Eliminators, for first stage amplifiers, £2 each; Igranic 24 Watt A.C. amplifiers, £3 each.

TO Callers.—A large quantity of public address and talkie gear, to be cleared knockout prices, prior to removal to larger premises, comprising traveltone amplifiers with R.C.A. valves, B.T.P. amplifiers, Amplion and numerous other makes, motor generators and converters, 100 G.E.C. and Zenith various slider resistances, microphones, Edibell voltage regulators, Weston meters, A.C. transformers, P.A. horns and units, Ica portable projector, charging panels, variable transmitting condensers, 100lb. Eureka various gauge wire, Ferranti transformers and chokes and electric motors and starters, etc.; please 'phone before calling or write.

H. FRANKS, 42a, St. George's St., Shadwell, London, E.1. 'Phone: Royal 8546. Nearest Underground Railway, Shadwell Station. [2291

T. W. THOMPSON and Co., 14-17, Strutton Ground, Westminster, S.W.1. Tel.: Franklin 6355. Nearest station, St. James' Park (Underground). Open every day (Sundays excepted) until 7.30 p.m. All goods on 3 days' approval against cash or c.o.d. (H.P.S. excepted).

UNIVERSAL Electric Gramophone Motors, A.C. or D.C., 200-250 volts, 19/6, post 9d.; A.C. gramophone motors, 200-250 volts, Eddy current type, 17/6, post 9d.; D.C. eliminators, brand new, output 150 volts, 30-40 milliamps, 200-250 input, 15/-, post 9d.; A.C. eliminators, 200-250 volts input, 150 volts 25 m.a. output, Westinghouse rectified, 23/-, post 1/-; Regenstat voltage controls, list 6/6, to clear 1/- each, post 4d.; automatic electric gramophone motors, plays 9 records, complete with all fittings, £5 each; Brown's public address Cubist moving coil speakers, in large oak cabinets, 100-250 volts mains, D.C., 55/- each; twin gang variable condensers, 0.0005, with trimmers, Claude Lyons, 4/6; British Radiophone, screened, 6/6, post 6d.; all-electric automatic floor polishers, for large halls, ball rooms, etc., all guaranteed, £7/10; wrist watch pattern Broadcast microphones, 4/- each, post 6d.; Broadcast microphones, on stand, 15/- and 27/6; Reisz pattern microphones, large, broadcast type, in all-aluminium cast case, 55/-; Rola M.C. speakers, 22/6; Magnavox, 22/6; portable accumulators, unspillable, size 4½in. × 3in. × 2½in., 6/-, post 6d.; condensers, Dubilier 12 m.f. banks 1,000 volts, 5/-, post 6d.; Western Electric 1 m.f., 6d. each, post 3d.; 2 m.f., in bakelite cases, 700 volt, 1/9, post 3d.; T.C.C. 2,000 m.f. dry electrolytic, 12 volt peak, 5/-, post 6d.; T.C.C., 8 m.f. electrolyte, 440 volt working, 3/9, post 3d.; 2 m.f. 1,000 volt test, 2/-, post 3d., 4 m.f., 1,000 volt, 4/-, post 3d.; Philips mains transformers, 200-250 volt input, outputs 250-0-250, 4 volt, 4 amp., 4 volt 2 amp., 3/6, post 6d.; Westinghouse L.T. rectifiers, 6 volt 1 amp., 6/6; genuine Pyrene fire extinguishers, reconditioned, guaranteed, 22/6.

T. W. THOMPSON and Co., 14-17, Strutton Ground, Westminster, S.W.1. [2282

MAINS TRANSFORMERS

FOR THE A.C. MONODIAL SUPER WITH A.V.C.

For 2.5 watt A.V.C. Power Chassis.
Mains Transformer: 350-350 v. 100 m/A, 4 v. 6 amps. centre-tapped, 4 v. 2.5 amps. centre-tapped, and twice 4 v. 1 amp. centre-tapped with screened primary. Standard type, Price **37/6**. Manufacturers' type, Price **33/-**.

For 5 watt A.V.C. Power Chassis.
Mains Transformer: Primary with earthed screen, secondary windings 400-0-400, 120 m/A, 4 v. 6 amps. c.t., 4 v. 2 amps., 4 v. 1 amp. c.t., 4 v. 3.5 amps., 4 v. 2 amps., 4 v. 1 amp. c.t. Standard type, Price **50/-**. Manufacturers' type, Price **45/-**.

FOR THE FERROCART III

Mains Transformer to exact W.W. specification, type F.C.3. Price **22/-**.

Speaker field replacement choke, type X37D. Manufacturers' type, Price **16/-**. Standard type, Price **18/-**.

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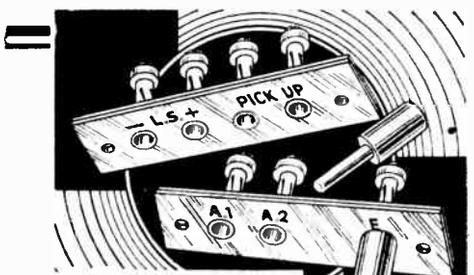
MAINS EQUIPMENT
W. BRYAN SAVAGE
56/58, CLERKENWELL ROAD, E.C.1.
'Phone: Clerkenwell 3068.



CLIX NEW CHASSIS MOUNTING STRIPS

CLIX are again first in supplying a new component to meet the needs of the up-to-date constructor. These strips provide an easier means of obtaining Perfect Contact. Strongly made of highest quality insulating material, they may be chassis mounted on metal, ebonite, or wood, or adapted to baseboard. Sockets, of the Turned Resilient Type, take solid or resilient plugs with equal efficiency and with smooth insertion and withdrawal. Terminals allow secure and solderless connections.

Type 1. Three sockets for Aerial and Earth ... ... **7D.**

Type 2. Four sockets: Loudspeaker and Pick-up ... **8D.**

No More Corroded Contacts
CLIX NEW SPADE TERMINALS
have a specially designed collar which fully protects from creeping acid a positive metal-to-metal wiring contact. Corrosion is impossible and Perfect Contact is always assured.

Large size: Nickel-plated or lead-coated. This type is essentially for accumulator work .. .. .. **2D.**

Small size: For terminal contact work. Nickel-plated .. .. **1½D.**

Write for CLIX Leaflet W.31.

CLIX
CHEAPEST PERFECT CONTACT
LECTRO LINX, LTD., 79a, ROCHESTER ROW, S.W.1

Components, etc., for Sale.—Contd.

HOYNE'S Transformers and Chokes.

250 0-250 v. 60 m.a., 4 v. 1·2 a. C.T., 4 v. 2·3 a C.T., 10/-, post 9d.

250 0-250 v. 60 m.a., 4 v. 1·2 a. C.T., 4 v. 2·3 a. C.T., 4 v. 1·2 a. C.T., 12/6, post 1/-.

350 0-350 v. 60-70 m.a., 4v. 2·3 a. C.T., 4 v. 3·4 a. C.T., Ferrocart III model, 12/6, post 1/-.

350 0-350 v. 120 m.a., 4v. 2·3 a. C.T., 4 v. 4·6 a. C.T., 4 v. 1·2 a. C.T., 16/-, post 1/3.

450 0-450 v. 150 m.a., 4 v. 2·4 a. C.T., 4 v. 2·6 a. C.T., 4 v. 2 a. C.T., 4 v. 2 a. C.T., 25/-, post 1/3.

500 0-500 v. 140 m.a., 4 v. 2·4 a. C.T., 4 v. 2·6 a. C.T., 4 v. 2 a. C.T., 4 v. 2 a. C.T., 27/6, post 1/3.

WESTINGHOUSE Model 150, 200, 240 v. 300 m.a., 4 v. 1·2 a. C.T., 4 v. 2·6 a. C.T., suitable for H.T.8, H.T.9, H.T.10, 15/-, post 1/3.

LINE Transformers (auto wound), 0-100, 110, 200, 220, 240 v. 60 watts, 7/9; 120 watts, 11/-; post 1/-; 160 watts, 15/- post 1/3.

CHOKES, 30 henry 150 m.a., 12/-, post 1/-; 20 henry 120 m.a., 8/6, post 1/-; 30 henry 60 m.a., 6/-, post 6d.; 20 henry 30 m.a., 3/6, post 6d.

HOYNE'S Transformers are Guaranteed for One Year.

HOYNE'S Transformers.—All primaries are tapped and screened, clamped in aluminium frames, and fitted with clearly marked terminal strips; any model can be obtained with screw terminals and engraved terminal strips at 2/6 extra.

HOYNE'S Transformers for Reliability.

HOYNE'S for the Best Components and Quickest Service.

M. J. HOYNE, Offices and Works, 8a, Gladstone Rd., Wimbledon, S.W.19. Tel.: Liberty 3303. [2220

EVERYTHING for Movies and Talkies.—'Phone, write or, better still, call and inspect immense stock of bargains.

ILLUSTRA ENTERPRISES, 159, Wardour St., London, W.1. Tel.: 6889 Gerrard. [1621

ROLA, 32/6; F5P.M., 19/6; Lumophone P.M., 16/6; Ferranti O.P.1, 9/6; O.P.M.4, 10/6 O.P.M.1(c), 12/6; U10, 6/-; M.S.4, metallised, 9/-; A.C.P., P.X.4, D.C.H.L., D.C.Pen., 354v., 6/6 each; all as new.—Hulbert, 24, Pargeter Rd., Warley, Birmingham. [2290

PARTS for Eliminator and Sets; send postcard; long list; mark your price.—6, Dallas Rd., *Stockland Green, Birmingham. [2272

PARTRIDGE.—If you cannot afford expensive components, assure equivalent results by dealing direct with a qualified mains specialist.

PARTRIDGE Transformers, guaranteed 12 months; primaries 200-250v., 50 cycles, all L.T. and C.T., carriage free.

PARTRIDGE "W.W." Specifications.—A.V.C. Monodial, 2-v. W. chassis, 20/-; 5 W. chassis, 24/-; Ferrocart III, 15/-; quality amplifier, 22/-; A.V.C. conversion, 4v. 1a., 8/-.

PARTRIDGE Popular Specifications.—250-0-250v., 60 m.a., 4v. 1a., 4v. 3a., 12/-; 350-0-350v., 120 m.a., 4v. 2½a., 4v. 4a., 4v. 1a., 18/6; 500-0-500v., 120 m.a., 4v. 2½a., 4v. 5a., 4v. 1a., 23/-.

PARTRIDGE Westinghouse Specifications.—135v. (tapped 110v.), 90 m.a., 4v. 3a., for H.T.6 or H.T.7, 11/-; 240v. (tapped 200v.), 180 m.a., 4v. 4a., for H.T.8 or H.T.9, 14/-.

PARTRIDGE Transformers Wound to Your Specification, extra charge negligible, quotation per return.

PARTRIDGE Chokes.—10H, 100 m.a., 120 ohms, 10/6; 28 14H, 120 m.a., 260 ohms, 11/-; 30H, 50 m.a., 400 ohms, 9/-.

PARTRIDGE.—Trade enquiries invited.

PARTRIDGE, B.Sc.(Eng.), A.M.I.E.E., A.I.Rad.E.

PARTRIDGE, N., King's Buildings, Dean Stanley St., London, S.W.1. 'Phone: Victoria 5035. [2284

PEPPER Draws Your Attention to Advertisement on page 6, col. 3, of last week's issue, and also the following:—

VALVES. Cossor 215S.G.V.M.s, 9/6; D.G.210, 8/6; A.C.2 H.L., 104v., A.C.104's, 7/11; P.M.24's, 8/6; many boxed, as new; satisfaction guaranteed.

KOLSTER-BRANDES Super Induction Motors, new, for A.C., 50 cycles, complete; cost £5/17/6, few only at £2/10.—48, Wake Green Rd., Birmingham. [2295

RADIO MART, Birmingham, announce purchase large portion Radio Recordians stock, consisting of Blattaller, Riffel, Truvox, Rola, Phillips, and R.K., P.A. speakers; valves, M7B, V600, U.L.4, E.S.75, 4211D, F.S.U.75, D.U.40, D.O.60; high voltage condensers, complete amplifiers, etc.; list 6d.

OWING to Expansion of Business we are opening new works and showrooms, 44, Holloway Head, 18,000ft. floor space. Midland 3254. Private Branch Exchange. Why not call and see the values that made this possible?—Radio Mart, 19, John Bright St., Birmingham. [2288

MAINS RADIO'S Clearance Week.—Set manufacturer's surplus, guaranteed as new, carriage paid or call; valves, latest types, P.X4s, 7/6; M.S.4s, 7/3; A.C./P1s, 5/-; A.C.064s, 4/6; U.U.60 550, U.U.60 250, P.M.24a, P.M.24s, 4/-; P625, 3/-; V.D.S., 3/-; D.C./S.G., 5/-; D.C. H.L., 4/-; D.C./P.E.N., 6/-; components—Dubilier 2 mfd., 250v. working, 1/4; 12 mfd., electrolytics, 450v. working, 2/4; parafeed transformers, 1/10; 100 m.a. 20h. chokes, 8/6; 60 m.a. C.T. chokes, 2/-; Magnum single screened coils, band pass or h.f. (perfect, but no switch rod), 1/9 each; Ekco 5-pin v-holders, 1/3 half dozen; 10ft. coils single screened heater wire, 9d. each; grassman 200-250v. D.C. M.C. speaker, 10/6; mtrn ditto 16 Watts input), £1; Cyldon 2 gang extenser, 16/-.—Mains Radio Development Co., 4-6, Muswell Hill Rd., London, N.6. [2296

FOR EVERY SET—*there's a*
PILOT AUTHOR KIT
CASH—C.O.D.—or H.P.

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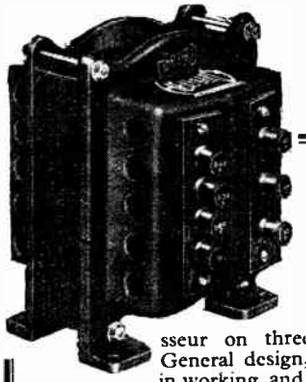

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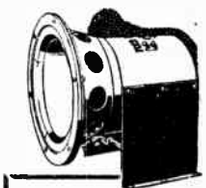

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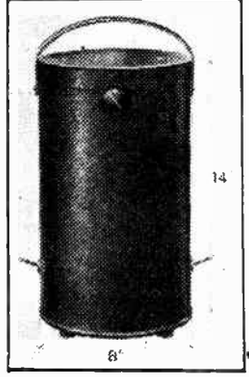

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INDEX TO ADVERTISEMENTS.

	PAGE
Accumulators, Elite	10
Alton Battery Co., Ltd.	
Atwater Kent (G. A. Britain, Ltd.)	Inside Front Cover
Automatic Coil Winder & Elec. Equipment Co., Ltd.	7
Baker's "Selhurst" Radio	8
Barber & Colman, Ltd.	
Belling & Lee, Ltd.	
Black, Alexander	11
Britannia Batteries, Ltd.	1
British Institute of Eng. Technology	
British Pix Co., Ltd.	v.
British Radiophone Co., Ltd.	
British Rola Co., Ltd.	
Bryce, W. Andrew, & Co.	
Bulgin, A. F., & Co., Ltd.	7
Burton, C. F., & H.	Cont. 11
Carrington Manf. Co., Ltd.	
Challis, O. M.	
Columbia Gramophone Co., Ltd.	
Colvern, Ltd.	
Cossor, A. C., Ltd.	2
Cressall Manfg. Co., Ltd.	6
Dubilier Condenser Co. (1925), Ltd.	Front Cover
Edison Swan Electric Co., Ltd.	3
Electradix Radios	
Electrical Trading Association, Ltd.	v.
Epoch Radio Manf. Co., Ltd.	11
Exile & Drydex	
Faraday All Wave Wireless, Ltd.	
Gambrell Bros., Ltd.	
General Electric Co., Ltd.	
Goodmans	
Gripso Co.	6
Haynes Radio	
Headford, F. C., & Co.	9
Heys, Leonard	8
Igranic Electric Co., Ltd.	8
Improved Wilson Microphone & Electrical Co., Ltd.	8
Jackson Bros.	Inside Back Cover
Lectro Linx, Ltd.	9
Lever, Eric J. (Trix), Ltd.	
Lissen Wireless Co.	
London Electric Wire Co. & Smiths, Ltd.	
London Radio Supply Co.	
Milnes Radio Co.	
Multitone Electric Co., Ltd.	
Nelco, Ltd.	11
Osborn, Chas.	11
Ostar-Ganz (Eugen Forlat)	8
Parima Manf. Co.	8
Partridge, Wilson & Co.	8
Partridge & Mee, Ltd.	
Pepper, Trevor (Seradex)	10
Peto-Scott Co., Ltd.	9
Pickett's	6
Pifco, Ltd.	Inside Front Cover
Players	Inside Front Cover
Postlethwaite Bros.	
Radio-Gramophone Development Co.	Outside Back Cover
Raven Resistor Co.	6
Reproducers & Amplifiers, Ltd.	vi.
Riverside Manf. Co., Ltd.	6
Rotax, Ltd. (M.L. Equipment)	Front Cover
Rotor Electric, Ltd.	
Savage, W. Bryan	9
Scott Sessions & Co.	5
Seekamp, O. H.	11
Shaftesbury Supplies	7
Sonochorde Reproducers, Ltd.	Front Cover
Telegraph Condenser Co., Ltd.	12
Telsen Electric Co., Ltd.	Front Cover
Turnadge & Partners, Ltd.	11
Varley (Oliver Pell Control, Ltd.)	
Wates Radio, Ltd.	7
Westinghouse Brake & Saxby Signal Co., Ltd.	Inside Back Cover
Wilburn and Co.	

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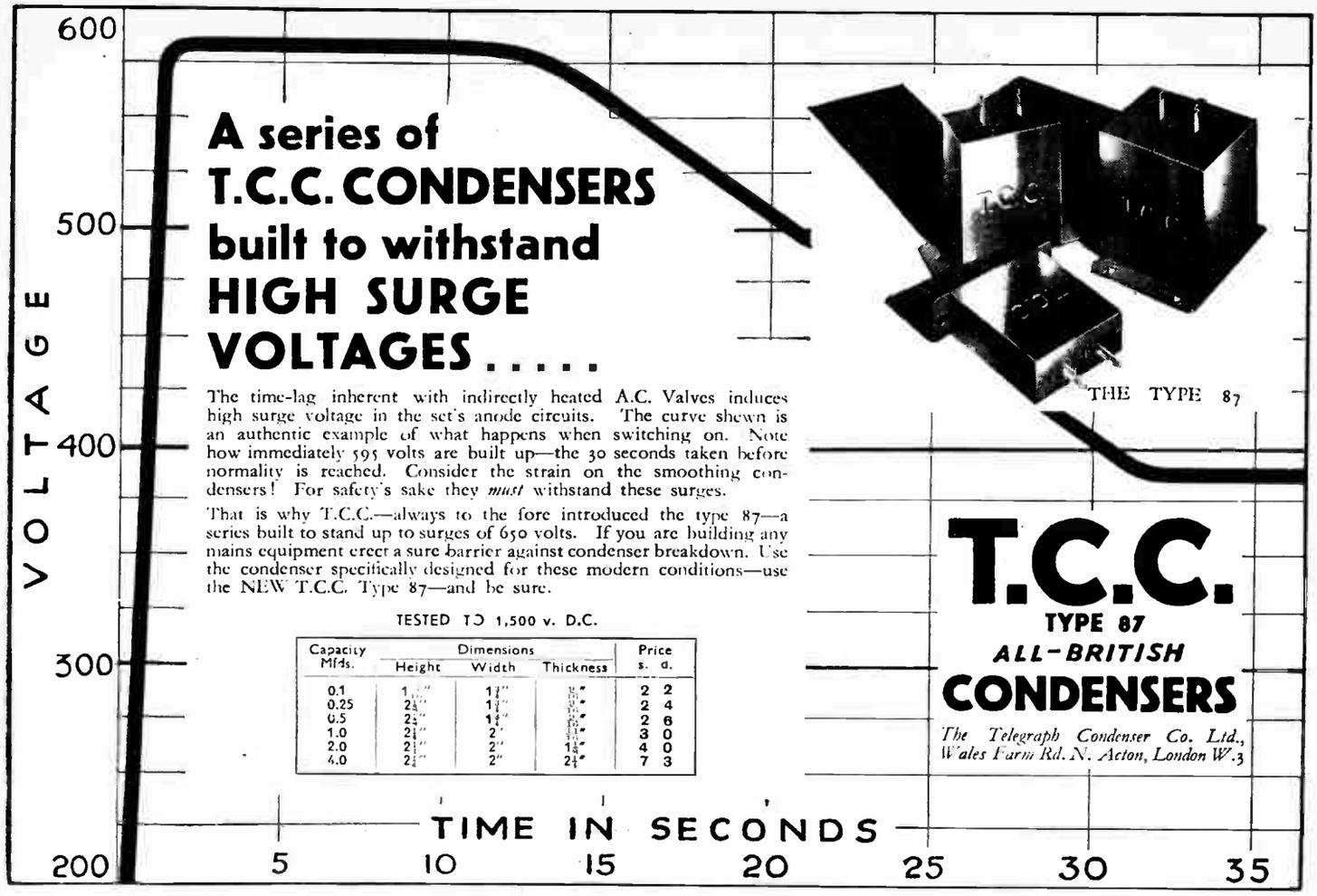

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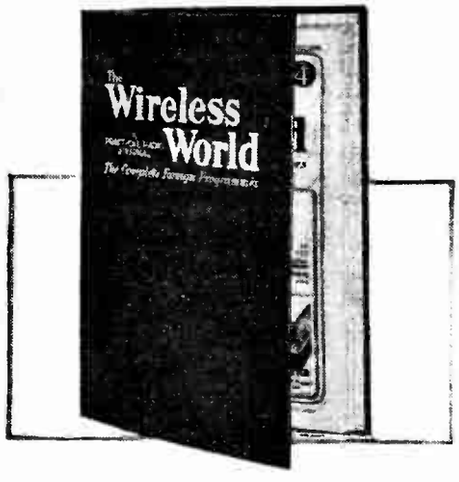

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WEDNESDAY

APRIL THE FIFTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	National lecture by Sir Eric Drummond. Serenade. Orchestral concert.
LONDON REGIONAL	"Songs from the Shows," a feature programme by John Watt.
MIDLAND REGIONAL	Choral concert from the Town Hall, Birmingham.
NORTH REGIONAL	Choral concert from the Milton Hall, Manchester. "Cue for Number," some pages from Music Hall History, by L. G. Williams.
WEST REGIONAL	"House of Rosieburn," a play by S. Cumine Russell.
SCOTTISH REGIONAL	"Hiawatha" (Coleridge Taylor), dramatised by T. C. Fairbairn.
BELFAST	Orchestral concert from Stranmillis.

ABROAD

BERLIN (Witzleben)	6.50 p.m. Opera: "Rienzi" (Wagner), from Unter den Linden.
BRUSSELS (No. 2)	7.30 p.m. Instrumental concert.
BUCHAREST	7.45 p.m. Violin and pianoforte recitals.
COPENHAGEN	8.5 p.m. A Radio Ball for young people.
EIFFEL TOWER	7.30 p.m. Symphony concert, conducted by M. Flament.
HAMBURG	7 p.m. Max von Schillings concert.
LANGENBERG	8 p.m. Mozart concert.
RADIO-PARIS	8 p.m. Lamoureux concert from the Salle Gaveau.
STRASBOURG	7.30 p.m. Concert from the Palais des Fêtes.
WARSAW	7.15 p.m. Concert from the Conservatoire.

ALGIERS

824 kc/s, 364 metres; 13 kW.—**7.15 p.m.,** Agricultural Report and Weather Forecast. **7.20,** Songs from Operetta. **7.55,** News. **8.0,** Time Signal. **8.2,** A Travelogue. **8.15,** Symphony Concert by the Station Orchestra. **8.45** (approx.) (in an interval), News. **9.30,** News. **9.45,** Hunting Horn Music. **9.55,** News. **10.0,** Dance Music relayed from the Hotel Aletti.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 1,337 kc s, 224.4 metres.—1.30 to 2 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Popular Music (contd.). **7.20,** News. **7.30,** Time Signal. **7.32,** Gaelic Talk. **7.45,** German Lesson. **8.0,** Concert by the Dublin Postal Band. **9.0,** Songs and Stories by Fay Sargent. **9.15,** Pianoforte Recital by Mervyn Williams. **9.30,** The Station Orchestra. **9.50,** Soprano Solos by Eileen Hadyn. **10.5,** The Station Orchestra. **10.30,** Time, News, Weather and Close Down.

BARCELONA

RADIO BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **7.0,** Dance Music, relayed from the Ritz Hotel, followed by Request Gramophone Records. **7.30,** Exchange Quotations. **8.0,** Light Music on Gramophone Records and News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. **9.5,** Concert by the Station Orchestra. **9.45,** Concert of Music by A. Cabané and J. Salvat - Winners of the Radio Competition. Part I. Suite muntanyenca (Cabané), for Soprano, String Quintet, Pianoforte and Harmonium. Part II. Six Soprano Solos (Salvat), with String Quintet, Pianoforte and Harmonium Accompaniment. After the Concert, Sextet Concert, relayed from the Granja Royal. **11.0** (in the interval), News Bulletin. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc s, 269.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes, Tourist Talk, and Dopolavoro Notes. **7.20,** Giornale Radio and Weather. **7.30,** Time and Announcements. **7.35** (approx.), Chamber Music; Soloists: Mario Gidiuli (Pianoforte) and Enza Motti Messina (Soprano). In the interval, Talk: The Five Senses. **9.30,** Light Music on Gramophone Records. **9.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.0 p.m.,** Talk. **6.30,** Light Music on Gramophone Records. **7.0,** Violin Duets. **7.50,** Radio Play. **8.30,** Concert by the Station Orchestra. **9.20,** News Bulletin, followed by Cigany Music relayed from a Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc s, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert from **Berlin (Witzleben). 1.45,** Programme for Children. **2.30,** Weather and Exchange. **2.45,** Readings (Hans Christoph Kaergel): (a) Was einer bei seiner Mutter fand, (b) Der Tod über der Strasse. **3.0,** Health Talks. **3.30,** See **Hamburg. 4.10,** Topical Talk. **4.30,** Talk: The Character of the German People. **5.0,** Recital of Romantic Opera Arias by Rosalind von Schirach. **5.25,** Talk: The Flemish People. **5.45,** Wireless Hints. **5.55,** Weather Forecast and Announcements. **6.0,** English Lesson. **6.30,** A Poem. **6.35,** Political Press Review. **7.0,** The Love Story of the beautiful Magalone and Count Peter from Provence (Ludwig Tieck), arranged for the Radio with Brahms' Songs. **8.15,** See **Frankfurt. 9.15,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Concert from **Heilsberg. 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 716 kc s, 419.5 metres; 1.5 kW.—**6.0 p.m.,** Topical Talk. **6.10,** Talk: An Exemplary Life. **6.28,** Announcement. **6.30,** Introductory Notes to the following Transmission. **6.35,** Rienzi—Opera (Wagner), relayed from the Opera House, Unter den Linden. In the intervals at **8.5** (approx.), The Unfamiliar Wagner—Reading of Letters, Conversations, and Documents; and at **8.50** (approx.). Weather, News, and Sports Notes. **9.45,** Dance Music relayed from the Eden Pavilion. **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**4.0 p.m.,** Reading. **4.10,** Light Music on Gramophone Records. **4.30,** Programme for Children. **4.40,** Concert of Children's Gramophone Records. **4.55,** Hungarian Programme: Song Recital by Marta Lanyi. **5.55,** Talk on Housing. **6.0,** See **Prague. 8.0,** See **Brno. 9.0,** See **Prague. 9.15** (approx.), Close Down.

BREMEN. See **Hamburg.**

BRESLAU

923 kc s, 325 metres; 60 kW., and **GLEIWITZ, 1,184 kc s, 253 metres.—4.40 p.m.,** Arnold Mendelssohn Memorial Concert: A Double Quartet, Gretel Dostal (Soprano), Willi Wunderlich (First Violin), and Karl Kraizyk (Second Violin). **5.25,** Talk: The Social Structure of the Population in the Upper Silesian Borderland. **5.45,** Talk: Inherited Talents and the Choice of a Career. **6.5,** Talk: German Patriotism in the Frontierlands. **6.25,** Weather for Farmers and Market Prices. **6.30,** See **Heilsberg. 8.0,** See **Langenberg. 9.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **9.30,** Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BRNO

878 kc s, 342 metres; 35 kW.—**4.10 p.m.,** Marionette Play. **5.5,** Review of Periodicals. **5.15,** Talk for Workers. **5.25,** German Transmission: News, Talk on Science, Talk for Workers, and Talk on Mental Hygiene. **6.0,** See **Prague. 6.10,** A Play (Rachilde). **6.35,** Programme from **Prague. 8.0,** Jokes—Musical and Literary Programme by the Station Orchestra, the Station Chorus, and Members of the National Theatre. **9.0,** See **Prague. 9.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**11.0 a.m.,** Concert by the Small Station Orchestra, conducted by P. Leemans. Overture, Euryanthe (Weber); Three Oriental Miniatures (Fischer); Serenade (Samazeuilh); Selection from Thaïs (Massenet); 'Cello Solo: Neapolitan Serenade (Sgambati); Estudiantina (Waldteufel); Selection from Elle est à vous (Yvain). **12 Noon,** Journal Parlé. **12.10 p.m.,** Concert by the Radio Orchestra, conducted by Franz André. Soloist: M. Misson (Violin). Joyeuse marche (Chabrier); Ballet Music from Le petit elfe Ferme-l'Oeil (Schmitt); Selection from Show Boat (Kern); Waltz for Violin (Saint-Saëns-Ysaye); Two Spanish Pieces (Albéniz); Orchestral Suite, Gli uccelli (Respighi); Interlude by Mme. Stradel. **4.0,** Concert by Mickey's Club Jazz Attraction, conducted by Ludo Langlois. **5.0,** Talk on Trades and Professions. **5.15,** Light Music on Gramophone Records. **5.30,** Song Recital by Mme. Gallin. Arias from: (a) Hérodiade (Massenet), (b) Tosca (Puccini), (c) La Bohème (Puccini); Le rossignol s'est tu (Sokolov). **5.45,** Tic à Tic—One-Act Comedy (de Férandy and Rouché). **6.0,** Saxophone Recital by M. Gason. **6.15,** Protestant Address. **6.30,** Journal Parlé. **7.0 to 9.0,** Ibsen Programme. **7.0,** Gramophone Records. Norwegian Dances, Nos. 2 and 3 (Grieg). **7.5,** Talk on Ibsen. **7.15,** March from Sigurd Jorsalfar (Grieg), on Gramophone Records. **7.25,** Scene from The Doll's House. **7.50,** Elegiac Melodies, Nos. 1 and 2 (Grieg), on Gramophone Records. **8.0,** Scenes from The Master Builder. **8.25,** Solveig's Song (Grieg) and Peer Gynt's Return (Grieg), on Gramophone Records. **8.35,** Scene from John Gabriel Borkman. **8.55,** In the Hall of the Mountain King (Grieg), on Gramophone Records. **9.0,** Le Journal Parlé. **9.10,** Popular Music on Gramophone Records. **10.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish.—**11.0 a.m.,** Orchestral Concert, conducted by Franz André. Soloist: M. Brenders (Pianoforte). Military March (Schubert); Pianoforte Solo: Musiquette (Pond); Carnival (Ring); Popular Spanish Airs by Mme. Monlaert-Maes; Russian and Romanian Dances (Bach): Extracts from Schaharazade (Rimsky-Korsakov). **12 Noon,** Journal Parlé. **12.10 p.m.,** Concert by the Small Station Orchestra. Soloist: M. Doulicz (Pianoforte). Overture, Le fils du Mandarin (Cui); Dances from Tom Jones (German); Serenade for Violin (Voss); Pianoforte Solo from Le roi des Aulnes (Benoit); Waltz (Read); Habanera (Monmaert); Foxtrot, Fascinatin' vamp (Nussbaum); Potpourri of Music by Padilla (Salabert). **4.0,** Concert by the Radio Orchestra, conducted by Franz André. Marche Baroque (Goyens); Overture, The Gipsy Baron (Joh. Strauss); Four Viennese Pieces (Kreisler); Potpourri (Dostal); Ballet Music (Turina); Ballet Music from Faust (Gounod). **5.0,** Variety Music on Gramophone Records. **5.15,** Talk: The Dutch Indies. **5.30,** Concert by the Small Station Orchestra, conducted by P. Leemans. Soloist: M. Doulicz (Pianoforte). Cortège des Bacchantes (De Taeye); Norwegian Sketch, Senta (Schneider); Suite (Flament); Pianoforte Solos: (a) Danse fantastique (Dicks), (b) Danse enfantine (Van Doren); Ballet Music from Feramors (Rubinstein); Flemish Divertissement (Vidal). **6.15,** Light Music on Gramophone Records. **6.30,** Topical Talk. **7.0,** Variety Music on Gramophone Records. **7.30,** Instrumental Concert. Soloists: M. Pitsch ('Cello) and M. Closset (Violin). Sonata in Five Movements (Pezellius); Concerto in G for Violin (Bach); Suite of Dances from Armide (Gluck); Adagio for Strings (Leken); Concertino for 'Cello (Pleyel); Symphony in A (Mozart). In the interval, Recitations. After the Concert, Le Journal Parlé. **9.30,** Dance Music on Gramophone Records. **10.0** (approx.), Close Down.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**3.0 p.m.,** Concert by the Station Orchestra. March, Frühlingskinder (Blankenburg); Waltz, Seid umschlungen Millionen (Strauss); Overture, Don Giovanni (Mozart); Selection from Cavalleria rusticana (Mascagni); Selection from The Merry Widow (Lehár); First Suite from L'Arlésienne (Bizet); Slav Dances, Nos. 15 and 16 (Dvorák); Lullaby (Fucik); Clog Dance (Fétras). In the interval at **4.0,** Radio Journal. **5.0,** Talk: Romanian Beliefs and Superstitions. **5.20,** Talks on Politics, Sociology and Law. **6.0,** Concerto for Saxophone (Gurewichs). **6.30,** Talk. **6.45,** Violin Recital. Sonata in G Minor (Tartini); Jota (Falla); Scherzo-Tarantella (Wieniavsky). **7.15,** Pianoforte Recital. Fantasia and Fugue (Bach-Liszt); Gavotte (Gluck-Brahms); Etude in the Form of a Waltz (Saint-Saëns); Toccata, Op. 111 (Saint-Saëns). **7.45,** News.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW.—Also relayed on **840 metres from 6.30 to 11.0 p.m.—4.30 p.m.,** Concert by the Budapest Orchestra. **6.0,** Italian Lesson. **6.30,** Song Recital by A. Strausky. **7.0,** Talk in German on the Budapest International Fair. **7.15,** Aimer—Play (Géraldy). **8.45,** News, followed by Cigány Music from the Café Baross. **9.30,** 'Cello and Pianoforte Recital. Sonata in F (Beethoven); Sonata in B Flat Minor (Dohnanyi). After the Recital, Concert of Cigány Music (contd.).

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **KALUNDBORG, 260 kc/s, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Town Hall Chimes. **11.1 to 1.0 p.m.,** Concert from the Wivex Restaurant. **2.0,** Violin Recital by Rasmus Sörensen: **2.30,** Orchestral Concert, conducted by Emil Reesen: Overture, Mignon (Thomas); Lyric Suite (Grieg); Waltz, Serenade, and Polka, from Les Millions d'Arlequin (Drigo); Norwegian Rhapsody No. 3 (Svendsen); Bacchanale from The Seasons (Glazunov). **3.30,** Talk for Women. **4.0,** Gramophone Concert: Leonora's Cavatina from Il Trovatore (Verdi); Rubia (Armand Crabbé); Leonora's Aria from the Fourth Act of The Force of Destiny (Verdi); Musette (Bach-Pollain); Song, I'm sure of everything but you (O'Flynn); Das Glück ist treulos (Doelle); Song from Baby (Lenx and Hannes). **4.40,** Exchange and Market Prices. **4.50,** Talk: John Bunyan. **5.20,** French Lesson. **5.50,** Weather and News. **6.15,** Time Signal and Agricultural Talk. **6.45,** The Hansen Family—a Humorous Episode (Jens Locher). **7.0,** Town Hall Chimes. **7.1,** Concert of Music by the Old Masters: Trio in G for Flute, Violin, Harpsichord, and 'Cello (Bach). Songs: (a) Aria, with 'Cello obbligato (Scarlatti), (b) Aria from Nine German Arias, with Flute obbligato (Handel); Trio Sonata in C Minor for Flute, Oboe, and Harpsichord, with 'Cello (Quantz). **7.35,** Talk: Problems of the Age—Nerves. **8.5 to 1.0 a.m. (Thursday),** a Radio Ball for Young People. **8.5,** Dance Music by Louis Preil's Orchestra, with Song Refrains. In the interval at **9.0,** News. **10.20,** Dance Music by the Valencia Orchestra. **11.0.** Town Hall Chimes. **11.1,** Dance Music from the Ritz Restaurant, **12 Midnight,** Dance Music from the Nimb Restaurant. **1.0 a.m.,** Close Down.

CORK.—See **Athlone.**

CRACOW

950 kc/s, 312.8 metres; 1.5 kW.—**5.45 p.m.,** Talk. **6.0,** Miscellaneous Items and Announcements. **6.15,** Talk: The Actual Output of Gold. **6.30 to 9.35,** See **Warsaw. 9.35,** Talk in Esperanto. **9.55,** See **Warsaw. 11.0,** Fanfare from Notre Dame.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11.0 a.m.,** Variety Music on Gramophone Records. **11.30,** News. **11.45,** Radio Concert. **5.0 to 6.0,** Programme in English by the I.B.C., C. Danvers Walker, B. McNabb, and F. Lamping announcing. **5.0,** Concert for Portsmouth Listeners. Special Request Programme: Sussex by the Sea (Higgs); Song, Danny Boy (Weatherley); Selection from H.M.S. Pinafore (Sullivan); Serenata (Toselli); Serenade (Heykens). **5.20,** Concert for Southsea Listeners. Special Request Programme. The Whistler and his Dog (Pryor); Presto agitato from the Moonlight Sonata (Beethoven); Sanctuary of the Heart (Ketelbey); Xylophone Solo: Overture, Raymond (Thomas); Der Rosehochzeitszug (Jessel); Wedgwood Blue (Ketelbey). **5.40,** Concert for Isle of Wight Listeners: In the Gloaming; Sally in our Alley; The Butterfly (Bendix); Two Eyes of Grey; Serenata; The Grasshoppers' Dance (Bucalossi). **6.0,** Radio Gazette. **6.20,** News and Popular Music on Gramophone Records. **6.45,** Answers to Correspondents and News. **7.15,** "Simplice" in his Repertoire. **7.30,** Concert, relayed from Dieppe. **10.0 p.m.** till Close Down. Programme in English by the I.B.C. **10.0,** Dance Music: I love a Parade; Lullabye of the Leaves; I do like to see a Game of Football; Underneath the Arches; Listen to the German Band; Paradise; The Clouds will soon roll by; Round the Marble Arch; Just another

SUN. MON. & TUES. PROGRAMMES

Dream of You; It ain't no Fault of mine; They all start whistling Mary; Love me tonight; Happy-go-lucky you; While we danced at the Mardi Gras. **11.0,** Music from Many Countries; Musical Gems (arr. Shalmer); In a Chinese Temple Garden (Ketelbey); Souvenir de Capri (Becce); Valencia (Padilla); African Lament (Gilbert); In the Sudan (Sebek); Black Eyes (arr. Ferraris). **11.30,** Vocal Concert: Drink, drink, Brothers drink (Bendix); The Laird o' Cockpen (Parry); The Sea Road (Haydn Wood); Musical Comedy Switch (arr. Hall); Good Friends (Heymann); The Pretty Creature (Lane Wilson); There is no death (O'Hara). **12.0 Midnight,** Club Concert for Gateshead Listeners: Part I. Variety Music: Silver-toned Chimes of the Angelus; Doon the Watter; Two of Irish; You're tired; All in Favour; Bref; When your Hair has turned to Silver; Part II. Vocal Duets: Open up dem pearly Gates; Every time my Sweetie passes by; Little Sweetheart of the Mountains; Orchestra: Miracle Melodies; She was poor but she was honest; Zululand; Would you take me back again? **1.0 a.m. (Thursday),** Accordion Solos: Javanette; Volante March; Bertina Waltz; Songs: (a) I'm in the Market for you, (b) Just like in a Story Book; The Waltz that made you mine; Senorita; Lullaby of the Leaves. **1.30,** Popular Songs: I'm so used to you; Leave the Rest to Nature; Ma Curly-headed Babby; Trios: (a) Old-time Jigs and Reels, (b) Turkey in the Straw; Kiss by Kiss; If I have to go on without you; Indian Love Call. **2.0,** Dance Music: Puttin' on the Ritz; I don't wanna go home; When I passed the old Church Door; With you; Lady Louisiana Moon; Rolling along; Meet me in my Dreams tonight; Get Happy; When it's Sleepy Time down South; Three little Times; Kisses in the Dark; A Faded Summer Love; Home; Desert Lover. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW.; **CASSEL, 1,220 kc/s, 245.9 metres;** and **TRIER, 1,157 kc/s, 259.3 metres.—5.25 p.m.,** Talk: The Beauty and Power of the German Language. **5.50,** Topical Talk. **6.15,** Time, Programme Announcements, Weather and Exchange. **6.30,** A German Almanac. **6.45,** See **Stuttgart. 8.15,** The Eifel, a Peasant Land of Western Germany—Radio Report by Paul Laven. **9.15,** Time, News, Weather and Sports Notes. **9.45,** See **Munich. 11.0** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—3.30 p.m.** (from **Flensburg**), Concert of Austrian and Hungarian Music: Rakoczy Overture (Kéler-Béla); Waltz, Winterstürme (Eucik); Ungarisches Erntefest (Dohnanyi); Ungarische Kinderszene (Dohnanyi); Dorfbilder aus Ungarn (Dohnanyi); Polka-Mazurka, Es gibt ja keine Männer mehr (Millöcker); Music for Strings and Harp (Komzak): (a) Ueberselig, (b) Liebchen träumt; Waltz, Wiener Praterleben (Translateur); Gallop, Grosstädtisch (Ziehrer). **4.30** (from **Kiel**), Talk: The Months of the Year in Folklore and Popular Beliefs. **4.55,** Variety Programme. **5.50,** Frankfurt Exchange and Hamburg Market Prices. **6.0,** Talk on Commercial Policy. **6.25,** Weather Report. **6.30,** Hanns Heinz Ewers reads from his own Works, with Introductory Talk. **7.0,** Max von Schillings Concert. Soloist, Jan Gesterkamp (Violin); Talk by Max von Schillings; Prelude to the Second Act of Ingwelde; Symphonic Fantasia, Sea Morning; Recitation, Das Hexenlied; Erntefest, from Moloch; Andante from the Violin Concerto; Suite from Mona Lisa. **8.45,** Topical Talk. **9.0,** Time and News. **9.20,** Concert, relayed from the Alsterpavillon. **10.15,** Dance Music, relayed from the Astoria, **Bremen.**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 453.2 metres.—12.5 p.m.,** Popular Music on Gramophone Records. In the interval at **12.20,** News. **1.30,** Programme, arranged by the Post Office, with Gramophone Records. **2.0,** Agricultural Prices and Exchange Rates. **2.20,** Talk for the Housewife. **2.30,** Programme for Children. **3.0,** Talk: Country Schools and Wireless Broadcasts. **3.30,** Concert by the Königsberg Opera House Orchestra, conducted by Erich Börschel. Overture, Nebuchadnezzar (Verdi); The Mid-day Witch (Dvorák); Selection from Der Evangelimann (Kienzl); Norwegian Rhapsody (Svendsen); Overture, Abu Hasan (Weber); Selection from The Circus Princess (Kálmán); Waltz, Künstlerleben (Joh. Strauss). **4.45,** Talk: Young People, Vocations and Sport. **5.15,** Agricultural Prices. **5.25,** Haydn Concert by a Boys' Choir. **6.0,** Bridge Lesson. **6.25,** Weather and News. **6.30,** Dance Music by the Small Station Orchestra, conducted by Eugen Wilcken. **8.15,** See **Frankfurt. 9.15,** Weather, News and Sports Notes. **9.25,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken. Overture, Fatinitza (Suppé); Strauss Potpourri (Schlögel); Overture, Prinz und Maurer (Oehlschegel); Waltz, Im Reiche der Venus (Gröschel); Selection from The Merry Peasant (Fall); March Potpourri, Lustiges Soldatenleben (Kochmann); Völkerfrühling (Blankenburg); March (Blankenburg). **11.0** (approx.), Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—Programme of the Workers' Radio Society (V.A.R.A.).—**11.40 a.m.,** Concert by De Notenkrakers Orchestra, conducted by D. Wins. Ins Blauen Leben (Erwin); In lauschiger Nacht (Ziehrer); Only a Smile (Zamecnik); Melody (Lodge); Serenade (Amadei); The Tyrol in Song and Dance (Fétras). **12.10 p.m.,** Organ Recital by J. Jong. Bridal Chorus from Lohengrin (Wagner); Consordino (Fellam); Bridal Procession of the Marionettes (Rathke); The Song of Songs (Moya). **12.25,** Orchestral Concert (contd.). Le toupet (Gillet); Czardas from Ritter Pasman (Strauss); Rosita (Dupont); Magyar Dalock (Lehár); Two Russian Dances (Bortkiewicz). **12.50,** Organ Recital (contd.). Mir gefällt jede Frau (Suppé-Gros); Fleurette (Nicholls); Wenn wieder Frühling ist (Abraham). **1.5,** Orchestral Concert (contd.). Einzug der Rosenkönigin (Rhode); Veilchen (Rust); Es war herrlich, Liebling (Grothe); Spiel mir auf der Balalaika (Kaper); Schöne Isabella aus Castilien (Bontz). **1.25,** Interval. **1.40,** Programme for Women. **2.40,** Programme for Children. **5.10,** Concert by the Small V.A.R.A. Orchestra, conducted by P. Duchant. March (Schootemeyer); Schmetterlingtänze (Schmalstich); Over the Waves (Rosas-Pachernegg); Das Blumenmädchen (Siede); In the Mystic Land of Egypt (Ketelbey); Gramophone Records; Greenland Suite (Juel-Frederiksen); With Lute and Violin (Armandola); Offenbachiana (Conradi). **6.10,** Talk. **6.40,** Organ and Song Recital by J. Jong and A. de Booy. Somewhere a Voice is calling (Tate); Der Spielmann (Wilszynski); Gebet des Landmannes (Granier); Es war einmal ein Baby (Kaper); Fahrt ins Blaue (Dostal). **7.10,** Talk. **7.25,** Talk by F. v. d. Walle. **7.40,** Election Talk. **7.55,** Instrumental Concert of Polish Music. **8.50,** News. **9.0,** Concert by the V.A.R.A. Orchestra, conducted by H. de Groot. Selection from The Italian Girl in Algiers (Rossini); Suite algérienne (Saint-Saëns); Caprice italien (Tchaikovsky). **9.50,** Vocal and Orchestral Concert. Conductor: E. Swerkoff. Soloists: Ira Gardeni (Soprano), Ada Mares (Mezzo-Soprano), Willy Henson (Tenor), and L. Schindler (Bass). Selection from The Merry Widow (Lehár); Es führt kein and'ter Weg zur Seligkeit (Werner-Heymann); Arias from: (a) Cavalleria rusticana (Mascagni), (b) The Magic Flute (Mozart); Cavatina from The Barber of Seville (Rossini); Waltz, Tales from the Vienna Woods (Joh. Strauss); Schwarze Katharina; Maskenball im Gänsestall (May-Schwabach); Selection from The Merry Wives of Windsor (Nicolai); Irgendwo auf der Welt (Heymann); Waltz, Frühlingsstimmen (Joh. Strauss). **10.40,** Variety Programme. **10.45,** Concert by the V.A.R.A. Orchestra, conducted by de Groot. Dem Frühling entgegen (Blankenburg); Selection from La mascotte (Audran); Selection from The Golden Cross (Brüll).; In a Japanese Garden (Higgs); Jungle Drums (Ketelbey); Erinnerungen an Bitolia (Karastnoyanov); Bubis Traum (Karke); L'Internationale (de Geyter). **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.55 a.m.** till Close Down. Programme of the Christian Radio Society (N.C.R.V.). **11.55,** 1812 Overture (Tchaikovsky) on Gramophone Records by the Philadelphia Symphony Orchestra, conducted by Stokowski. **12.10 p.m.,** Music by the Van der Horst Trio. **12.55,** Organ Solos. **1.40,** Time Signal. **1.41,** Gardening Talk. **2.25,** Programme to be announced. **2.40,** Time Signal. **2.41,** Religious Address. In the interval at **2.55,** Time Signal. **3.10,** Recital by Annie Hermes (Contralto), G. Beths (Violin), and P. Halsema (Pianoforte): Ciacouna for Violin (Vitali); Contralto Solos (Bach): (a) Erwürgtes Lamm, (b) Mein Jesu, was für Seelenweh, (c) Selig, war an Jesum denkt, (d) So gehst du nun mein Jesu hin; Sonata for Violin, Op. 8 (Grieg); Gramophone Record: Scherzo from A Midsummer Night's Dream (Mendelssohn), by the San Francisco Symphony Orchestra, conducted by Alfred Hertz; Contralto Solos (Wolf): (a) Herr was trägt dein Boden hier, (b) Seufzer, (c) Fussreise, (d) Nimmersatte Liebe; Violin Solos: (a) Mazurka (Chopin-Kreisler), (b) Sicilienne (Paradise-Dushkin), (c) Chanson à bercer et à danser (Artok-Dushkin), (d) Minuet (Ravel-Dushkin); Contralto Solos: (a) Berceuse (René-Bâton), (b) Le Secret (Fauré), (c) Automne (Fauré), (d) Aurore (Fauré). **4.40,** Time Signal. **4.41,** Programme for Children. **5.40,** Time Signal. **5.41,** Talk: Our Watchwords in the Struggle against Bolshevism—Religion, Family Life and Authority. **6.10,** Talk on the Industrial Crisis. **6.40,** Programme arranged by the Department of Buildings and Roads. In the interval at **7.10,** Police Notes. **7.40,** Time Signal. **7.41,** Concert by the N.C.R.V. Orchestra, conducted by Piet v. d. Hurk and the Utrecht Double Quartet: Ach, Herr, lasz dein lieb Engelein, from the St. John Passion (Bach); O Lamm Gottes (Dreius): The Utrecht Double Quartet: (a) Der Herr ist mein Hirt (Klein), (b) Jesus, meine Zuversicht (Crüger); Himmelsruh (Hellwig); Nach der Heimat (Nägeli); Herr, unser Gott (Schnabel); Praise Jehovah (Palmer); The Utrecht Double Quartet and Orchestra: (a) Die Ehre Gottes in der Natur (Beethoven), (b) Das ist der Tag des Herrn (Kreutzer); Chorus from Samson (Händel). **8.25,** Programme arranged by the Department of Buildings and Roads. **8.40,** Talk. **9.10,** Concert (contd.): The Utrecht Double Quartet: (a) Abendständchen (Schiebold), (b) Mein Heimattal (Franz Wagner); Caprice on a German Theme (Bekker); Song Potpourri (Scholtens); Overture, Raymond (Thomas); Selection from Aïda (Verdi). **9.40** (in the interval), Press Review. **10.25,** Popular Music on Gramophone Records. **11.10** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**7.20 p.m.,** English Lesson. **7.30,** Radio Concert. **8.0,** Weather and News. **8.15,** Concert. **11.0 to 12 Midnight,** Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**6.0 p.m.,** Educational Talk. **6.15,** Announcements and Popular Music on Gramophone Records. **6.30,** See **Warsaw. 9.40,** Dance Music. **10.0,** Answers to Correspondence in French.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Orchestral Concert: March, Gruss an Münster (Lange); Overture, Maritana (Wallace); Waltz, Träume auf dem Ozean (Gungl); Selection from La Favorita (Donizetti); Japanese Suite No. 2. In the Kingdom of the Sun (Yoshitomo); Slav Rhapsody No. 2 (Friedemann); Potpourri of Themes by Joh. Strauss; Millöcker and Suppé (Ziehrer). In the interval at **1.0 p.m.,** News. **1.30,** Sponsored Programme with Gramophone Records. **2.30,** Economic Notes and Time. **2.50,** Programme to be announced. **3.20,** Reading. **3.40,** Talk: Handicrafts in West Germany. **4.0,** Concert. Kläre Hansen (Soprano), Elsie Schmitz (Soprano), Hans Wocke (Baritone), Wilhelm Strienz (Bass), Walter Schneiderhan (Violin), and Karl Delseit (Pianoforte). **5.20,** Reading. **5.45,** Weather, Time, Economic Notes, and Sports Results. **6.0,** Talk: Cathedrals in the Upper Rhine District—Constance, Reichenau, and Basle. **6.20,** Health Talk. **6.35,** Talk: Causality and Freedom. **6.55,** News. **7.0,** Gramophone Concert; Adolf Busch and Rudolf Serkin: Sonata in G for Violin and Pianoforte (Bach); Elisabeth Schumann (Soprano): (a) Wiegenlied (Flies), (b) Warnung (Flies); Wilhelm Kempff (Pianoforte): (a) Bagatelle in C, Op. 33 (Beethoven), (b) Ecossaises (Beethoven); Heinrich Rehkemper (Baritone): (a) Das Rosenband (Schubert), (b) Der Musensohn (Schubert); Walter Rehberg (Pianoforte): First Movement from the Fantasia, Op. 17 (Schumann); Adolf Busch and Rudolf Serkin: Sonata in G, Op. 78, for Violin and Pianoforte (Brahms). **8.0,** Mozart Concert by the Station Orchestra, conducted by Buschkötter; Soloists; Hans Belz (Pianoforte): Serenade in D; Pianoforte Concerto in A; The Jupiter Symphony in C. **9.20,** News and Sports Notes. **9.30,** Report on the World Championships in Billiards, relayed from the Gürzenich, Cologne (on Gramophone Records). **9.45,** See **Munich. 11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. and **Dresden 941 kc/s, 319 metres.—3.0 p.m.,** Programme for Young People: A Radio Play and a Concert. **4.50,** Exchange Quotations, Weather and Time. **5.10,** Review of Books. **5.35,** Italian Lesson. **5.55,** Programme to be announced. **6.5,** Talk: The Destruction and Re-formation of Capital. **6.30,** Popular Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer, and the Leipzig Soloists Choir. **7.45,** Topical Talk, followed by News. **8.5,** The Zwinger at Dresden—A Literary and Musical Sequence (Dr. Herbert Roth), with a Talk: The History of the Zwinger. **9.20,** News, followed by Gramophone Concert of Verdi's Opera Music. **10.30** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.0 to 5.30 p.m.,** Programme in English by the I.B.C. International Broadcasting Club Concert. Orchestra: Waltz, Roses from the South (Strauss); Quintet, I know of Two Bright Eyes; Song, Il Bacio (Arditi); Quintet, Albumblatt. Orchestra: Waltz, Wine, Woman and Song (Strauss); Quintet, Lies; Song, The Blue Danube (Strauss); Quintet, Romance. **6.0,** Russian Lesson. **6.30,** Literary Programme. **7.0,** Gregor Rihar Concert. **8.15,** Quintet Concert. **9.15,** Time and News.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**6.30 p.m.,** Radio Gazette for Lyons and the South-East. **7.30,** Concert of Operetta Music by the Symphony Orchestra and Soloists. After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAQ); 9,860 kc/s, 30.43 metres; 20 kW. — Spanish - American Programme. Items to be Announced.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, and Request Gramophone Records. **8.25,** News Bulletin and Political Review. **8.30 to 9.30,** Interval. **9.30,** Chimes, Time Signal, Political Review, and Dramatic Programme. **11.45,** News Bulletin. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**4.10 p.m.,** See **Brno. 5.5,** Agricultural Talk. **5.20,** Light Music on Gramophone Records. **5.35,** Talk for Workers. **5.25,** Concert by a School Boys' Choir. **6.0,** See **Prague. 8.0,** Talk on Journalism. **9.0,** See **Prague. 9.15** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—12.15 p.m.,** Opera Music by the Cast of the Scala, Milan, on Gramophone Records. **1.0,** Time, Weather, Announcements, News, and Exchange. **1.20,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Reading for Young People. **2.25,** Talk: Reminiscences of an Airman. **2.50,** Weather and Agricultural Notes. **3.0,** Programme for Children. **4.0,** See **Langenberg. 5.15** (from **Nürnberg**), Talk: Springtime in German Poetry. **5.35,** Talk for Women. **5.55,** Time, Weather, and Agricultural Notes. **6.5,** Song Recital by Margot Leandor (Soprano) and Emanuel Gianna (Baritone): Songs from Goethe's Wilhelm Meister's Apprenticeship; Mignon's Songs: (a) Kennst du das Land, (b) Heiss mich nicht reden, (c) Nur wer die Sehnsucht kennt, (d) So lasst mich; The Harper's Songs: (a) Wer sich der Einsamkeit ergibt, (b) An die Türen will ich schleichen, (c) Wer nie sein Brot mit Tränen ass. **6.35,** Talk: Nietzsche and the German Spirit. **6.55,** Summer is Coming—a Variety Programme by the Small Station Orchestra and the Klemens Rapp Band. **8.30,** Concert of Chamber Music by the Munich String Quartet; Soloist, Felix Saupe (Violin); Pianoforte Quintet in One Movement on a Silesian Folk Song (Kurt Schubert); Quartet in C Minor, Op. 60 (Brahms). **9.20,** Time, Weather, News, and Sports Notes. **9.45,** Serenade, conducted by Erich Kloss. **11.0** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—4.15 p.m.,** Gramophone Concert: Music by Ketelbey, Lehár, Massenet, Liszt, Donizetti, and Tchaikovsky. **5.0,** French Lesson. **5.30,** Talk for Boys: Easter. **6.0,** Announcements, Weather and News. **6.30,** Talk on Psychoanalysis. **7.0,** Time Signal. **7.2,** Concert by the Station Orchestra, conducted by Hugo Kramm: Overture, Armide (Gluck); Concert Piece in F Minor, Op. 79, for Pianoforte and Orchestra (Weber); Andantino from the Fourth Symphony (Tchaikovsky); Suite (Saint-Saëns); In an Old Monastery Garden

(Hurum); Bergensiana (Halvorsen); Egyptian Suite (Haydn Wood); Four Pieces (Hjellemo). **8.30,** Agricultural Report. **8.40,** Weather and News. **9.0,** Topical Talk. **9.15,** Talk. **9.45,** Dance Music. **11.0** (approx.), Close Down.

ÖSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**7.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes and Giornale Radio. **7.20,** Light Music on Gramophone Records. **7.30** (in an interval), Time Signal and Announcements. **7.45,** Orchestral Concert of Variety Music. Soloists: R. Alfano (Harp) and Ettore Paladino ('Cello): Invitation to the Waltz (Weber); Harp Solo: Fantasia (Thomas); Intermezzo from I quattro Rusteghi (Wolf-Ferrari); Sonata for 'Cello and Pianoforte (Donato); Harp Solos: (a) Prelude Hasselmans, (b) Minuet in G (Rameau); Mattinata sull'Appennino (Vaccari); 'Cello Solos: (a) Aria (Porpora), (b) Capriccio (Piatti), (c) Tarantella (Croce); Olaf's Dance (Pick-Mangiagalli). In the interval, Talk. After the Concert, Song Recital. **9.55,** News Bulletin.

PARIS

EIFFEL TOWER (FLE), 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.,** Talk on the Theatre. **6.0,** Le Journal Parlé. **6.45,** Talk for Young People. **7.20,** Weather Forecast. **7.30,** Symphony Concert, conducted by M. Flament; Soloist, Albert Lévêque (Pianoforte): Largo (Handel-Guirand); Concerto in D Minor for Pianoforte and Strings (Bach); Symphony in E Flat (Mozart). In the interval at **8.15,** News Bulletin. **9.0** (approx.). Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW. **6.0 p.m.,** Light Music on Gramophone Records. **7.0,** Talk on Social Insurance. **7.15,** Interval. **7.30,** Sponsored Concert. **8.0,** Interval. **8.15,** Concert. **9.30,** Dance Music, relayed from the Lido. **10.0,** News.

PARIS

RADIO-PARIS (CFR), 174 kc/s, 1,725 metres; 75 kW.—**5.45 a.m.,** Physical Culture. **6.45,** Gramophone Records: Selection from La Vie Parisienne (Offenbach-Chapelier); Selection from Le Petit Duc (Lecocq). **7.0,** Press Review and Weather. **11.0,** Educational Talk. **11.15,** Operetta Music of Many Lands—Concert by the Radio Paris Orchestra. **11.30,** Organ Recital by G. T. Desserre, relayed from the Gaumont Palace: Overture, Morning, Noon and Night (Suppé); Je vous en prie (Desserre); Selection from La Fille de Madame Angot (Lecocq); Kermesse (Siede). **12 Noon,** Exchange, News, and Weather. **12.5 p.m.,** Operetta Concert (contd.). In the intervals at **12.30,** Exchange. **1.0,** Exchange. **2.45,** Exchange and Market Prices. **5.10,** Agricultural Talk. **5.30,** Exchange and Market Prices. **5.40,** German Lesson. **6.0,** Medical Talk. **6.20,** Concert of Old Dances: Bourrée in A Minor (Bach); Gavotte from Iphigenia in Aulis (Gluck); Passepied du jardinier (Lully); Gavotte (Lully); Rigaudon from Dardanus (Rameau); Ochsenmenuett (Haydn). **6.50,** Commercial Prices and News. **7.0,** Literary Talk: The Art of Letter Writing. **7.30,** News and Weather. **7.40,** Fashion Review by Mlle José. **7.45,** Gramophone Concert: Pièces de clavecin en concert (Rameau): (a) La Timide, (b) Tambourin; 'Cello Solos: (a) Larghetto (Handel), (b) Tambourin (Sonis). **8.0,** Concert by the Lamoureux Concert Society, conducted by Théodore Mathieu, relayed from the Salle Gaveau; Soloists: Jean Hazart (Songs) and Emma Boynet (Pianoforte): Les Préludes (Liszt); Songs (Fraggi); Concerto in F (Gaubert), conducted by the Composer; Ballad for Pianoforte and Orchestra (Fauré); Selection from Scheherazade (Rimsky-Korsakov).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.,** Work-a-day Thoughts. **9.5,** Business News. **9.15,** Ballroom Promenade, from **New York. 9.30,** Weather Report. **9.32,** Market Reports. **9.45,** Blue Ridge Buddies. **9.57,** David Lawrence Dispatch. **10.0,** Jean and Gene. **10.15,** Dick Daring, from **New York. 10.30,** The Singing Lady. **10.45,** Little Orphan Annie, from **New York. 11.0,** Booth Tarkington's Maude and Cousin Bill, from **New York. 11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** KDKA Orchestra. **11.45 to 1.45 a.m. (Thursday), New York** Relay. **11.45,** To-day's News, by Lowell Thomas. **12 Midnight,** Amos 'n' Andy. **12.15 a.m.,** The Southern Singers. **12.30,** International Tidbits. **1.0,** Eno Crime Club. **1.30,** Time Signal and Harriett Lee and her Leaders. **1.45,** Programme to be announced. **2.0,** Adventures of Sherlock Holmes, from **New York. 2.30,** Woodbury Programme, with Morton Downey and Donald Novis, from **New York. 3.0,** Programme to be announced. **3.15,** Around the Cracker Barrel. **3.30,** Music Magic, from **New York. 4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.15,** Press Last-minute News Flashes. **4.20,** Smith Ballew and his Orchestra. **4.58,** KDKA Artist Bulletin. **5.0,** College Inn Orchestra, from **New York. 5.30,** Time Signal and Goodnight.

PORSGRUND. See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by Otakar Paník. Soloist: Walter Süsskind (Pianoforte). Concerto for Pianoforte and Orchestra (Mastalir); Symphonic Poem, Op. 107; Russalka (Dvorák). **4.0,** Medical Talk. **4.10,** See **Brno. 5.5,** Agricultural Report. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission: Talk for Workers. **6.0,** Chimes. **6.10,** Military Band Concert. **7.10,** Talk: Present Day Economic Problems. **7.25,** Talk on the following Transmission. **7.35,** The Pianoforte Sonatas of Jiri Benda. Recital by Jan Herman. Sonata in A Minor; Andante quasi allegretto, and Tempo di minuetto from the Sonatina in F; Allegretto giocoso from the Sonatina in D; Allegretto and Minuetto from the Sonatina in F; Allegro non troppo, Andantino and Allegro from the Sonata in E Flat. **8.0,** Time Signal. **8.1,** See **Brno. 9.0,** Time Signal. **9.1,** News Bulletin. **9.15,** Talk in French on Foreign Affairs. **9.30** (approx.). Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres, 25 kW.; **LAUSANNE, 442 kc/s, 680 metres;** and **GENEVA, 395 kc/s, 760 metres.**—**6.0 p.m.** (from **Geneva**), Weather, News, and Announcements. **6.30** (from **Lausanne**), Agricultural Talk. **7.10,** Rachmaninov Pianoforte Recital. **7.45,** Concert by an Accordion Band, relayed from **Neuchâtel. 8.15** (from **Lausanne**), Instrumental and Choral Concert. **9.0,** News and Weather. **9.10,** Dance Music, relayed from the Bel-Air Métropole. **10.0** (approx.). Close Down.

RJUKAN. See **Oslo.**

ROME

680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—**6.45 a.m.,** Gymnastics. **7.15 to 7.30,** Giornale Radio and Announcements. **11.30,** Weather and Variety Music on Gramophone Records. **12 Noon,** Time and Announcements. **12.10 p.m.,** Orchestral Concert. In the interval at **12.30,** Giornale Radio and Exchange. **1.15 to 3.45,** No Transmission. **3.45,** Children's Radio Review. **4.10,** Announcements. **4.15,** Exchange, Report of the Royal Geographical Society and Giornale Radio. **4.30,** Concert by Maria Luisa Sardo (Violin), Margherita De Acutis (Soprano) and Clara Sardo (Pianoforte): Violin Solos: (a) Slav Fantasia (Dvorák), (b) Fire Dance (Fallà-Kochanski); Songs: (a) The Princess (Grieg), (b) Gretchen am Spinnrade (Schubert); Pianoforte Solo: L'Isle joyeuse (Debussy); Songs: (a) Assisa a pié d'un salice, from Othello (Rossini), (b) Das Veilchen (Mozart); Violin Solos: (a) Waltz, Hochstein (Brahms), (b) Guitarre (Moszkovsky). **5.15 to 6.0,** Interval. **6.0** (from **Naples**), Shipping and Sports Notes. **6.10,** Agricultural Report and Dopolavoro Notes. **6.20,** Giornale Radio. **7.0,** Time, Announcements and Gramophone Records. **7.15,** Medical Talk. **7.30,** Sports Notes and Tourist Report. **7.45,** Relay from a Theatre. In the interval, News. **9.55,** News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**7.30 p.m.,** Westminster Choir from New York. **8.0,** Two Seats in the Balcony from New York. **12 Midnight,** Mischa Weishord (Violinist) from New York. **12.15 a.m. (Thursday),** Stock Reports. **12.30,** Marion Williams (Soprano) and Roger Sweet (Tenor). **12.45 to 2.30, New York** Relay. **12.45,** The Goldbergs. **1.0,** The Royal Vagabonds. **1.30,** The Shadow, Mystery Drama. **2.0,** General Tyre and Rubber Company Programme. **2.30,** Supper Club Orchestra and Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BERDMUNSTER, 653 kc/s., 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres.**—**11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40** (from **Berne**), Gramophone Records: Symphonic Poem, Mazeppa (Liszt). **11.55** (from **Berne**), Song Recital by Caruso on Gramophone Records. **12.10 p.m.** (from **Berne**), Selection from Cavalleria Rusticana—One-act Opera (Mascagni), on Gramophone Records. **12.35 p.m.,** Weather and Exchange. **12.45 to 2.30,** Interval. **2.30** (from **Basle**), Variety Music on Gramophone Records. **3.30** (from **Basle**), Programme for Children. **4.0** (from **Basle**), Light Music on Gramophone Records. **4.30,** Weather and News. **5.30** (from **Basle**), Talk: The Influence of the Alps on the Weather Conditions in Switzerland. **6.0,** Time, Weather, and Market Prices. **6.15** (from **Basle**), Talk: Voice as an Indication of Character. **6.45** (from **Basle**), Arias from Cantatas for Passion Week and Easter by Hans Jürgen Walter. **7.35** (from **Basle**), Heroic Flight Radio Play (Robert Walter). **8.30,** Weather and News. **8.40** (from **Basle**), Gramophone Concert of Popular Music. **9.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Horby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres. 4.5 p.m.,** Translation of a Student's German Exercise, relayed from **Malmö (1,301 kc/s, 231 metres). 4.15,** Folk Music. **4.35,** Popular Music on Gramophone Records. **5.50,** From the Bird World: Reading and Talk. **6.15,** Weather and News. **6.30,** Talk, relayed from **Malmö. 7.0,** Concert by the Music Society of the Northern Museum: Canzona for Two Organs (Kerll); Brandenburg Concerto No. 6 in B Flat (Bach); Two Hymns (Roman); Concerto Gross No. 2 in F for Violin, 'Cello, String Ensemble and Organ (Händel). **7.50,** Reading. **8.15,** 'Cello Recital by Arnold Földesy, relayed from **Malmö**: Sonata in G (Breval); Fantastic Variations (Castelnuovo-Tedesco); Etude, Op. 25 (Chopin); Pièce en forme de Habanera (Ravel); Zapateado (Sarasate-Földesy). **8.45,** Weather and News. **9.0,** Dance Music by the Enders Orchestra, relayed from the Bern Hall. **10.0** (approx.). Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**10.30 a.m.,** Classical Music on Gramophone Records. **11.45,** News. **12 Noon,** Time and Exchange. **12.5 p.m.,** Gramophone Concert: Intermezzo from Cavalleria rusticana (Mascagni); Thou art flown, from The Tales of Hoffmann (Offenbach); Aria from Manon (Massenet); Song of the Flea (Mussorgsky); Aria from The Fair Maid of Perth (Bizet); Mirror Scene from Thais (Massenet); Two Arias from Lakmé (Delibes); Selection from I Pagliacci (Leoncavallo); Arias from Boris Godunov (Mussorgsky): (a) Boris' Goodbye, (b) The Death of Boris; Prologue to The Twilight of the Gods (Wagner). **1.0 to 4.0,** Interval. **4.0,** Orchestral Concert, conducted by Roskam: Marche joyeuse (Guéjol); Slow Waltz, Fleur d'Alsace (Christol); Overture, Girofle-Girofla (Lecocq); Song of the Bees (Filippucci); Selection from The Tales of Hoffmann (Offenbach); Mattinata (Leoncavallo); Tango (Albeniz); Selection from The Gipsy Baron (Joh. Strauss); Prelude, La Violinista (Marenco); March, King Cotton (Sousa). **5.0,** Trio Concert relayed from **Lille, 1,130 kc/s (265.4 metres). 6.0,** Talk on Sociology. **6.15,** Talk on Handwork. **6.30,** Time and News. **6.45,** Extracts from The Merry Widow—Operetta (Lehár), on Gramophone Records. **7.20,** Lottery Results. **7.30,** Concert by the Municipal Orchestra, and the Conservatoire Choir, relayed from the Palais des Fêtes, Conductor: Fritz Munch. Soloist: Gaspard Cassado ('Cello). Overture, Manfred (Schumann); Concerto for 'Cello and Orchestra (Schubert); Les cris du monde, for Choir, Soloists and Orchestra (Honegger). **9.30,** Jazz Music, relayed from the Savoy. **11.0** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**12.30 p.m.,** Opera Music (Furtwängler conducting) on Gramophone Records. **1.0,** Programme arranged by the Post Office, with Gramophone Records. **2.30,** Programme for Children. **3.30,** Pianoforte Recital by Paul Schotte. **4.0,** See **Langenberg. 5.0,** Time, Weather, and Agricultural Notes. **5.10,** Talk: The Motorist goes Rambling—some Practical Hints for Walking Tours. **5.35,** Talk: The State Schemes for Providing Work. **6.0,** Time Signal and News Bulletin, followed by Gramophone Music. **6.25** (from **Mannheim**), Programme in Palatine Dialect. **6.45,** Concert by the Philharmonic Orchestra, conducted by Gustav Görlich; Soloist, Willy Domgraf-Fassbaender (Baritone): Overture, The Merry Wives of Windsor (Nicolai); Aria from Figaro (Mozart); Minuet from the Symphony in G (Leopold Mozart); Aria from Hans Heiling (Marschner); Prelude to Aida (Verdi); Aria from A Masked Ball (Verdi); Overture, Poet and Peasant (Suppé); Two Folk Songs: (a) Die alten Strassen noch (Redl), (b) Alle Tage ist kein Sonntag (Clewing); March, Deutschlands Ruhm (Schröder). **8.15,** See **Frankfurt. 9.15,** Time, News, Weather, and Programme Announcements. **9.40,** Welchen Brief hätten Sie?—Radio Story (Hans Franck), arranged and recited by Edith Herrnstadt-Oettingen. **10.10,** Serenade from **Munich. 11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

MIDI, 779 kc/s, 385 metres; 8 kW.—**6.30 p.m.,** Operetta Music: Songs from La Fille de Madame Angot (Lecocq), Mam'zelle Nitouche (Hervé), and Véronique (Messager). **6.45,** Bal Musette. **7.0,** Arias from Opera: Prayer from Werther (Massenet); Siciliene from Cavalleria rusticana (Mascagni); Mimi's Entry from La Bohème (Puccini). **7.15,** Viennese Music. **7.45,** Music Hall Programme. **8.15,** Military Music. **8.30,** Instrumental Solos. **8.45,** Popular Songs. **9.0,** Accordion Solos. **9.15,** North African News. **9.30,** Concert for Listeners in Morocco. **10.0,** Orchestral Music: Selection from Il Guarany (Gomez); Selection from La Princesse jaune (Saint-Saëns); Selection from Gwendoline (Chabrier); Ronde villageoise (Chabrier). **10.30 to 11.0,** Programme in English by the I.B.C. W. Brown-Constable announcing: "A Year Ago"; Song of Happiness; The Longer that you linger in Virginia; The Queen was in the Parlour; O Donna Clara; I'm happy when I'm hiking; Moonlight on the Colorado; You will remember Vienna; The Love Waltz. **10.57,** I.B.C. Good-night Melody. **11.0,** Weather and Announcements. **11.5,** Operetta Music. **11.15,** Military Music. **11.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**6.50 p.m.,** Concert by the Caffè Dante Orchestra, followed by Programme from **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**4.0 to 5.0 p.m.,** Song Recital. **5.35,** Giornale Radio, Agricultural Report and Dopolavoro. **6.0,** Time and Gramophone Records. **6.20,** Giornale Radio. **6.45,** Tourist Talk and Gramophone Records. **7.0,** Announcements, Giornale Radio and Weather. **7.15,** Medical Talk. **7.30,** Comedy in Three Acts, followed by Orchestral Music. **10.0,** Giornale Radio. **10.5** (**Florence** only), Dance Music from the Chez moi Rajola. **10.30** (approx.), Close Down).

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—**10.0 to 10.15 a.m.,** Religious Information in Spanish. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 452.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,37? kc/s, 218.5 metres.**—**5.50 p.m.,** Norwegian Programme: Talk on Norway; Talk by Werner Weress-kio'd, the Consul General. Norwegian Folk Songs sung by Gunnar Graarud. **6.30,** Time, Weather and Programme Announcements. **6.40,** Orchestral Concert of Popular Music. **7.45,** Gallische Hörner—Radio Play (d'Haussonville and Ludwig von Wohl). **9.0,** News and Weather. **9.15,** Talk on the Austrian Musical Festival. **9.25,** Dance Music relayed from the Café Palmof.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**10.57 a.m.,** Fanfare from St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Light Music on Gramophone Records. **12.20 p.m.,** Weather Forecast. **12.25 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.30,** Boy Scouts' Report. **2.35,** Programme for Children. **3.0,** Popular Music on Gramophone Records. **3.20,** Talk on History. **3.40,** Talk: Sport on Economical Lines. **4.0,** Talk for Music Teachers. **4.30,** Announcements. **4.40,** Talk on Social Works. **4.55,** Programme Announcements. **5.0,** Biological Talk. **5.20,** News. **5.25,** Dance Music and Light Music relayed from the Café Italia. **6.0,** Miscellaneous Items. **6.20,** Agricultural Bulletin. **6.30,** Literary Talk. **6.45,** Radio Journal. **7.0,** Talk. **7.15,** Orchestral Concert by the Amateur Association for Old Music, relayed from the Conservatoire. Soloists: Lidja Barbian-Opienska (Songs) and B. Kon (Pianoforte). Conductor: M. Mierzejewski. Introductory Talk; Symphony in D (Dankowsky); Two Songs (Kamienski); Symphony in D (Eighteenth Century); Soprano Solos from (a) Thésée (Lully), (b) Les Fêtes d' Bébé (Rameau); Concerto in G No. 2, for Pianoforte (Haydn). In the interval: Sports Notes and Radio Journal. **9.0,** Topical Talk. **9.15,** Dance Music on Gramophone Records. **9.35,** Talk in Esperanto, relayed from **Cracow, 959 kc/s (312.8 metres). 9.55,** Aviation Weather Report and Police Notes. **10.0,** Dance Music, relayed from the Café Gastronomia.

ZURICH.—See **Schweizerischer Landessender.**

APRIL 5th WEDNESDAY *continued*

THURSDAY
APRIL THE SIXTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	A village production of "Macbeth," L. du G. Peach. "Songs from the Shows," feature programme by John Watt.
LONDON REGIONAL	Scots variety programme.
MIDLAND REGIONAL	Military Band programme.
NORTH REGIONAL	Choral and orchestral concert by children.
SCOTTISH REGIONAL	Scots variety programme.
BELFAST	"In Lighter Vein," orchestral concert.

ABROAD

BRUSSELS (No. 2)	8 p.m. The Radio Orchestra and the Choir of Nôtre Dame Médiatrice.
BUDAPEST	6.30 p.m. Ballet: "Fanny Elssler" (Nador and Farago), and opera: "The Violin Maker of Cremona" (Hubay).
COPENHAGEN	7 p.m. Opera: "William Tell" (Rossini).
HAMBURG	8 p.m. Symphony concert, conducted by Prof. Haremann.
HILVERSUM	7.55 p.m. Concert from Amsterdam, conducted by Dr. W. Mengelberg.
HUIZEN	7.25 p.m. Bach's St. Matthew Passion, from Haarlem.
LANGENBERG	9.20 p.m. Serenade and dance music.
ROME	7.45 p.m. Symphony concert, conducted by V. Gui.
STOCKHOLM	9 p.m. Orchestral concert of Russian music.
TURIN	8 p.m. Opera: "Mignon" (Thomas), from the Scala, Milan.

ALGIERS

824 kc/s, 364 metres; 13 kW.—**7.10 p.m.,** Shipping Notes. **7.15,** Agricultural Report and Weather Forecast. **7.20,** Talk: Curiosities and Recreations. **7.35,** Dance Music. **7.55,** News. **8.0,** Time Signal. **8.2,** Radio Play (Fleischmann). **8.45,** News Bulletin. **8.50,** Request Gramophone Concert. **9.40,** News Bulletin. **9.45,** Music by an Argentine Orchestra. **9.55,** News. **10.0,** Concert of Oriental Music. **11.0** (approx.), Close Down.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time, Weather, Stock Report, and Popular Music on Gramophone Records. **6.0,** Variety Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Popular Music on Gramophone Records. **7.10,** Dublin Cattle Market Report. **7.20,** News. **7.30,** Time Signal. **7.31,** French Lesson. **7.45,** Literary and Dramatic Programme. **8.0,** Recital on Two Pianofortes by the Misses A. and Rhona Clarke. **8.30,** Violin Duets by the Misses M. and U. Kenny. **9.0,** Songs by T. Dawson. **9.15,** Station Orchestra. **9.35,** 'Cello Solos by Miss A. L. Carew. **9.50,** Concert by the Station Orchestra. **10.30,** Time, News, Weather Report, and Close Down.

BARCELONA

RADIO BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **7.0,** Request Gramophone Concert. **7.30,** Exchange Quotations and Educational Talk in Catalan. **8.0,** Light Music on Gramophone Records and News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **9.5,** Concert by the Station Orchestra: March, Soldaditos en parada (Limenta); Selection from Bruniselda (Morera); Pavane (Ravel); Gavotte and Musette (d'Ambrosio); Castilla (Albéniz); Invitation to the Waltz (Weber). **10.0,** Dramatic Programme: Part I, En cuarto creciente Farce in One Act (Manuel Linares Rivas); Part II, Entre riscos—Monologue in Verse (Marina de Castarlenas); Part III, La Señorita se aburre—Comedy in One Act (Benavente). **11.0** (in an interval), News Bulletin. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes, Tourist Talk, and Dopolavoro Announcements. **7.20,** Giornale Radio and Weather Forecast. **7.30,** Time Signal and Announcements. **7.35** (approx.), Military Band Concert, conducted by Salvatore Rubino. In the interval, Art Notes. **9.30,** Popular Music on Gramophone Records. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**5.25 p.m.,** Time Signal and Programme Announcements. **5.30,** Dialogue in French. **6.0,** Concert by the Station Orchestra. **7.0,** Choral Concert from **Ljubljana. 9.0,** News, followed by Cigany Music relayed from the Potrosacka Zadruga.

BERLIN

KONIGS WUSTERHAUSEN, 1,635 kc/s, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert from **Berlin (Witzleben). 2.0,** Programme for Children. **2.30,** Weather and Exchange. **2.45,** Reading: Die Gesellschaft im Keller (E. T. A. Hoffmann). **3.0,** Talk for Women: The Palm Sunday Confirmation of Children. **3.30,** See **Berlin (Witzleben). 4.10,** Talk: Nietzsche and the Prussian State. **4.30,** Violin and Pianoforte Recital by Willy Kirch and Oskar Woll: Sonata in A, Op. 12, No. 2 (Beethoven); Violin Sonatina in D, Op. 137, No. 1 (Schubert). **5.0,** Dialogue: The Relations between Germany and Italy. **5.30,** Five Songs for Contralto, Op. 15 (Otto Frickhoeffer): (a) Lebenslauf, (b) Die Götter, (c) Empedokles, (d) Abbitte, (e) An die Parzen. **5.55,** Weather and Announcements. **6.0,** Dialogue: Must we speak Academic German? **6.30,** A Poem. **6.35,** Agricultural Talk. **7.0,** Concert of Popular Music by the Bastian Orchestra: Waltz, Mein Lebenslauf ist Lieb und Lust (Jos. Strauss); Overture, Morning, Noon and Night (Suppé); An den Frühling (Grieg); Anbetung (Schmalstich); Selection from Der Obersteiger (Zeller). **7.40,** Reading: Der deutsche Mythos (Alfred Rosenberg). **8.20,** Concert of Chamber Music. **9.20,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Programme from **Langenberg. 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.0 p.m.,** Topical Talk. **6.10,** Talk: German Idealism throughout the Ages. **6.35,** Gerhard Menzel talks about himself and his Radio Play. The Cathedral. **6.45,** Johann Strauss Concert by the Station Orchestra, conducted by Bruno Seidler-Winkler. Overture, Waldmeister; Russian March Fantasia; Waltz, Freut Euch des Lebens; Annen-Polka; Diplomaten-Polka; Romance for 'Cello and Orchestra; Waltz, Rathausballtänze; Klipp-Klapp-Galopp from Waldmeister. **7.35,** Announcement. **7.40,** The Cathedral—Radio Picture (Gerhard Menzel). **9.0,** Weather, News and Sports Notes. **9.15** (approx.), Dance Music, relayed from the Europa Pavillon. **11.0** (also relayed by **Zeesen** on **31.38 m.**), Andreas Holimann Radio Play (Hans Christoph Kaergel).

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**3.10 p.m.,** See **Brno. 4.10,** Talk on Politics. **4.20,** See **Brno. 4.50,** Light Music on Gramophone Records. **5.5,** See **Prague. 5.25,** Song Recital by Maria Halynska. **5.55,** Talk on Housing. **6.0,** See **Prague. 6.10,** Talk on Economics. **6.25,** Two Violin Duets (Hermann). **6.55** till Close Down, See **Prague. 10.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW., and **Gleiwitz, 1,184 kc/s, 253 metres.—12.15 p.m.,** Concert by the Small Silesian Philharmonic Orchestra, conducted by Hermann Behr: Overture, Preciosa (Weber); Five Minuets (Schubert); Lagunenwalzer (Joh. Strauss). **12.45,** Time, Weather, News, and Exchange. **1.5,** Gramophone Concert: Selection from Carmen (Bizet); Selection from The Merry Widow (Lehar); Am Donaustrand (Viennese Melody); The World in Song (Intrator); March Potpourri, Fredericiana (Frederick the Great). **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Tourist Talk: Plans for April. **2.50,** Book Review. **3.10,** Programme for Children. **3.35,** Concert from **Heilsberg. 4.30,** Agricultural Prices. **4.35,** Concert of Music of the Baroque Period. Members of the Radio Orchestra: Annelise Kupper (Soprano) and Kurt Hattwig (Harpsichord). Part I, J. Christoph Pez: Sonata quarta; Recitative and Aria from Exsurge in adjutorium meum; Part II, Agostino Steffani: Scherzo, Fileno, iodo mio; Aria and Overture from Henry the Lion. **5.20,** Programme to be announced. **5.35,** Talk for the Business Woman. **6.0,** Talk: The Atlantic Ocean as a Research Field for German Science. **6.30,** Weather for Farmers. **6.35,** Orchestral Music: Selection from The Tales of Hoffmann (Offenbach); Waltz, An der schönen grünen Narenta (Komzak); March, Bergheil (Kristen). **7.0,** The Gulf Stream—Radio Picture (Brandt). Music by Hans Sattler. **8.0,** Announcements. **8.10,** Chamber Music by the Manzer Quartet: String Quartet in A Minor, Op. 51, No. 2 (Brahms): Suite in Old Style (Brandt-Buys). **9.10,** Time, Weather, News, Sports Notes, and Programme Announcements. **9.30,** Talk: The Inspector of Theatres. **9.50** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**3.10 p.m.,** Concert by the Station Orchestra, conducted by J. Janota: Overture, Corsair, Op. 21 (Berlioz); Scherzo-Caprice, Op. 5 (Nedbal); Invitation to the Waltz (Weber); Italian Caprice (Tchaikovsky). **4.10,** News for Young People. **4.20,** Programme for Children. **4.50,** Students' Report. **5.0,** Literary Review. **5.15,** See **Prague. 5.25,** German Transmission: News, Talk, and Readings for Children. **6.0,** See **Prague. 6.25,** Folk Music. **6.55** till Close Down, See **Prague. 10.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**11.0 a.m.,** Variety Music on Gramophone Records. **12 Noon,** Le Journal Parlé. **12.10 p.m.,** Concert by the Little Station Orchestra, conducted by Leemans: March (Heymann); Ballet egyptien (Luigini); Doll Dance (Turina); Selection from Lilac Time (Schubert-Berté); Humoresque for Violin (Wigy); Melodies from a Sound Film (Heymann). **4.0,** Schubert Concert by the Symphony Orchestra, conducted by Kumps: The Unfinished Symphony; Military March No. 2. **4.30,** Programme for Children. **5.0,** Talk: Women and the Co-operative Movement. **5.15,** Light Music on Gramophone Records. **5.30,** Concert by the Little Station Orchestra, conducted by P. Leemans. **6.15,** Report for Workers. **6.30,** Le Journal Parlé. **7.0,** Concert by the Radio Orchestra, conducted by C. Walpot: The Cadets' March (Sousa); Waltz, Ange d'amour (Waldteufel); Overture, Martha (Flotow); Songs: Selection from Miss Decima (Audran); Vocal Quartet, Lying in the Hay (Mireille, arr. Brenders). **7.45,** Talk: Co-operative Propaganda. **8.0,** Concert by the Symphony Orchestra, conducted by J. Kumps: Canadian Fantasia (Gilson); Two Pieces (de Greef): (a) Meurtri est mon Cœur, (b) Le duc d'Albe. **8.20,** Interlude by the Montmartre Group Le Grillon. **8.40,** Concert (contd.): Divertissement on Brabançon Airs (Delcroix); Extracts from Scenes de Ballet (Glaznuov). **9.0,** Le Journal Parlé. **9.10,** Old and New Dances—Gramophone Concert; Part I, Old and Modern Dances: Waltz, Sobre las Olas (Rosas); Old-Fashioned Dances; Waltz, Donauwellen (Ivanovici); Juju (Costoncelli); Flamenco Pasodoble, Gallito (Lope); Part II: Modern Music: Prelude à l'après-midi d'un Faune (Debussy); Aux étoiles (Dupare); Scherzo from the Irish Symphony (Hamilton Harty); Selection from Le Festin de l'araignée (Roussel). **10.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R.; 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish. **11.0 a.m.,** Concert by the Small Station Orchestra, conducted by P. Leemans. Soloists: F. Wigy (Violin) and A. Goethals (Songs). **12 Noon,** Journal Parlé. **12.10 p.m.,** Gramophone Concert: Overture, Le jeune Henri (Mehul); Selection from Lilac Time (Schubert); Rêve d'enfant (Ysaye); Ballet égyptien (Luigini); Berceuse, from Jocelyn (Godard); Solemn Melody (Walford Davies); Hungarian March (Berlioz). **4.0,** Concert by the Radio Orchestra, conducted by Charles Walpot: K.V.O. strijdlied (Meulemans); Overture, Gwendoline (Chabrier); Judex, from Mors et Vita (Gounod); Carnival Suite (Thomé); Overture, Poet and Peasant (Suppé). **4.45,** Programme for Children. **5.20,** Heer, bind mij vast—Radio Play (Staf Weyt). **6.15,** Talk. **6.30,** Talk for Women. **7.0,** Concert by the Symphony Orchestra, and the Choir of Notre Dame Médiatrice: Overture, Charlotte Corday (Benoit); Concerto for Trumpet and Orchestra; Danse macabre (Saint-Saëns); Choral Music (Clemens): (a) Ave Maria, for Mixed Choir, (b) Mère de Dieu, for Women's Choir, (c) Hodie Christus natus est, for Mixed Choir, (d) O quam suavis est, for Women's Choir, (e) Klapt in de handen, for Mixed Choir. **7.45,** Talk on House Plants. **8.0,** Concert by the Radio Orchestra and the Choir of Notre Dame Médiatrice. Orchestra: (a) Overture, The Italian Girl in Algiers (Rossini), (b) A Journey by Zeppelin (Mannecke); Choral Music (Clemens): (a) Wijft met mirt en palmen, for Mixed Choir, (b) O memoriale, for Mixed Choir, (c) O, L. Vrouw ter Schaduw, for Women's Choir, (d) Kruiscantate; Orchestra: Caprice italien (Tchaikovsky). **8.55,** Evening Prayer. **9.0,** Journal Parlé. **9.10,** Variety Music on Gramophone Records. **10.0** (approx.), Close Down.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**3.0 p.m.,** Light Music and Roumanian Music by the Dinico Orchestra. In the interval at **5.0,** Radio Journal. **4.30,** Talk: Roumanian Philosophy. **4.50,** Talk on Art. **5.30,** Relay from the Opera House. In the intervals, Radio Journal.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW.—Also relayed on **840 metres** from **6.25 to 11.0 p.m. 4.30 p.m.,** Talk. **5.0,** Orchestral Concert of Light Music. **6.0,** Talk. **6.30,** Fanny Elssler—Ballet (Nador and Farago), followed by The Violin Maker of Cremona—Opera in Two Acts (Hubay), relayed from the Royal Opera House. After the Opera, Cigany Music from the Emke Café. **10.15,** Jazz Music from the New York Café.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW. —**11.0 a.m.,** Town Hall Chimes. **11.1 to 1.0 p.m.,** Concert from the Hotel d'Angleterre. **2.0,** Reading. **2.20,** Concert, from the Wivex Restaurant. **4.0,** Programme for Boys. **4.30,** Exchange and Market Prices. **4.50,** Talk on Hygiene. **5.20,** English Lesson. **5.50,** Weather and News. **6.15,** Time Signal. **6.16,** Talk: Christianity in Scandinavia. **6.45,** Talk on the following Transmission. **7.0,** William Tell—Opera (Rossini), relayed from the Oddfellows' Hall. Conductor, Maestro Egisto Tango. Soloists: Luigi Börgonovo, Antonio Bagnariol, Emanuel List, Viorica Tango, Ingeborg Steffenson, and Thyge Thygesen. **9.15,** News Bulletin. **9.30,** Reading. **9.50,** Dance Music from the National Scala. In the interval at **11.0,** Town Hall Chimes.

CORK.—See **Athlone.**

CRACOW

950 kc/s, 312.8 metres; 1.5 kW.—**6.0 p.m.,** Answers to Correspondents. **6.15,** Miscellaneous Items and Announcements. **6.30 to 8.30,** See **Warsaw. 8.30,** Dramatic Programme, relayed from **Katowice (734 kc/s, 408 metres). 10.0,** Concert of Light Music and Dance Music, relayed from the Pavilion Restaurant. **11.0,** Fanfare from Notre Dame.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11.0 a.m.,** Variety Music on Gramophone Records. **11.30,** News. **11.45,** Programme for Children. **5.0 to 6.0 p.m.,** Programme in English by the I.B.C., C. Danvers Walker, B. McNabb and F. Lamping announcing. **5.0,** Concert for Worthing Listeners: Special Request Programme: Try a little Tenderness; The Voice in the old village Choir; Let's put out the Lights; Good-night, Vienna; How deep is the Ocean?; Marta. **5.20,** Concert for Brighton Listeners: Music by a Tango Orchestra: Te fuiste ja ja; Adios Argentina; La Paloma; Thrill me; Tesoro mio; Mama Inez. **5.40,** Concert for Hove Listeners: Popular Songs: Sleepy Valley; The Clock is playing; S'posin'; She's such a Comfort to me; The Cuckoo Waltz; I'm a Dreamer. **6.0,** Radio Gazette. **6.20,** News and Light Music on Gramophone Records. **6.45,** Answers to Correspondence and News. **7.30 to 9.30,** Programme relayed from the Town Hall, Rouen. **7.30,** Gardening Talk and Literary Review. **7.45,** Symphony Concert. **10.0 p.m.** till Close Down, Programme in English by the I.B.C. **10.0,** Light Music: Say Isn't So; Wanderer; How'm I doin'?; Let's all sing like the Birdies sing; The old Man of the Mountains; Try a Little Tenderness; Let's put out the Lights; When the Morning rolls around; Let's all Dance the Polka; We will always be Sweethearts; Humming to Myself; What would you Do?; How are

APRIL 6th THURSDAY continued

You?; Night shall be Filled with Music. 11.0, Tchaikovsky Concert: Chant sans paroles in A Minor: Andante cantabile from the Quartet in D; Hungarian Dance from The Swan Lake; Violin Solo: The Lark; Trio: Chant sans paroles; Waltz from The Sleeping Beauty; Third Movement from the Pianoforte Concerto in B Flat Minor; Valse des fleurs. 11.30, Vocal Concert: My Ain Folk; Silver Threads among the Gold; Three Fishers went sailing; Quartet: Molly on the Shore; On the Banks of Allan Water; Love's old Sweet Song; Caller Herrin'; Quartet: Cherry Ripe. 12 Midnight, Club Concert for Benhaim Harbour and Neighbouring Towns. Part I: Variety Music: The Golden Bird; Dreamy Southern Nest: Peter Perkins at the Races; Old Dutch Home; Daddy's Boy; Here Comes Emily Brown. Part II: Vocal Duets: When I wore my Daddy's Brown Derby; Pasadena Rose; Liza Lee; Orchestral Interlude: Ragpickers' Party; When the Rest of the Crowd goes Home; Hawaiian Stars are Gleaming; My Baby just cares for Me. 1.0 a.m. (Friday), Organ Recital: Stein Song (Vallée); The Kiss Waltz (Dubin); It happened in Monterey (Wayne); Rhapsody in Blue (Gershwin); Ah! Sweet Mystery of Life (Herbert); Moonlight reminds me of You (Kahn); Roses of Yesterday (Berlin). 1.30, Songs and Pianoforte Duets: Songs: (a) The first Week-end in June (Ellis), (b) I'm in the Market for You (Hanley), (c) Sweet Temptation (Young); Pianoforte Duet: Bow Bells (Sullivan); Songs: (a) I fell for You (Walker), (b) Just like in a Story Book (Hanley), (c) Who Cares? (Hackworth); Pianoforte Duet: Air from The Cat and the Fiddle (Kern). 2.0, Variety Music. Two Little Blue Little Eyes; That's When I learned to Love You; I Love You, Believe Me, I Love You; Gipsy Dream Rose; My Heart belongs to the Girl who belongs to Somebody Else; The Moon is Low; Beside an Open Fireplace; Kitty from Kansas City; Reminiscing; My Cigarette Lady; I still Remember; It must be You; Mary I Love You; If I had a Girl like You. 2.57, I.B.C. Good-night Melody. 3.0, Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—4.0 p.m., Beethoven Concert by the Darmstadt Municipal Academy of Music, relayed from **Darmstadt;** Soloist: Elsie Gohr (Pianoforte): Overture, Egmont; Pianoforte Concerto No. 1 in C, Op. 15. 5.15, Exchange Quotations. 5.25, Talk by Hans Rosband: Max Reger. 5.50, Talk: Advertising as an Aid to Industrial Revival. 6.15, Time, Programme Announcements, Weather, and Exchange. 6.30, Hans Heyck discusses his own Works. 6.45, Talk: The Observance of Sundays and Holidays in Prussia. 7.0, **See Stuttgart.** 8.0, Max Reger Memorial Concert, relayed from the Friedenskirche; Helmut Walcha (Organ) and Elly Schaefer-Ratazzi (Soprano): Organ Sonata in D Minor, Op. 60; Sacred Songs, Op. 137: (a) Dein Wille, Herr, geschehe, (b) Bitte um einen seligen Tod, (c) O Jesu Christ, wir warten dein; Fantasia on the Choral, Wachet auf, ruft uns die Stimme. 9.0, Time, News, Weather, and Sports Notes.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—6.0 p.m. (from **Hanover**), Health Talk. 6.25, Weather Report. 6.30 (from **Bremen**), Song and Pianoforte Recital by Andreas Boehm and Reinhold Krug: Caro mio ben (Giordano); Ultima Canzone (Tosti); Madrigal (Simonetti); Nocturne (Sgambati); Don Carlos' Monologue and Aria from The Force for Destiny (Verdi); Aria from André Chénier (Giordano); Drinking Song from Hamlet (Thomas). 7.0, Variety Programme for Choir and Orchestra. 8.0, Symphony Concert, conducted by Prof. Havemann. 9.0, Time and News. 9.20, Topical Talk. 9.30, Orchestral Concert, relayed from the Kaiser Café, Altona: Homage March from Sigurd Jorsalfar (Grieg); Overture, Nebuchadnezzar (Verdi); Melody from Lohengrin (Wagner); March, Semper Talis (Knoch); Comedy Overture (Bohm); Hochzeitszug des Maharadscha (Stork); Spanish Waltz, La Serenade (Metra); Victoria-Marsch (v. Blon); Vilja's Song from The Merry Widow (Lehár); Potpourri. Lasst den Kopf nicht hängen (Lincke); March (Rumohr).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 453.2 metres.**—12.5 p.m., Gramophone Concert of Variety Music. In an interval at 12.20, Announcements. 1.30, Exchange. 2.0, Agricultural Prices and Exchange. 2.30, Programme for Young People. 3.0, Reading of Letters from Goethe's Mother to Bettina von Arnim. 3.30, Concert by the Small Station Orchestra, conducted by Eugen Wilcken. 4.45, Talk: Experiences of a German Engineer in Turkey and Persia. 5.15, Agricultural Prices. 5.25, Agricultural Talk. 5.50 (from **Danzig**), Song and Flute Recital by Freida Leopold and Kurt Schlenger: Two Old Songs to the Lute: (a) Feinsliebchen, (b) Von der edlen Musik; East Prussian Dialect Songs for Children: (a) Oedeboar, mött Noame, (b) Schloap, min Kindke lange; Introduction and Variations on Ihr Blümlein alle from the Müllerlieder, Op. 160, for Flute and Pianoforte (Schubert); Songs to the Lute: (a) Rosel, wenn du meine wärst, (b) Swedish Fisher Dance. 6.30, English Lesson. 7.0, Spring—A Radio Potpourri, by the Station Choir, the Small Station Orchestra and Soloists. 8.40, Gerhard Eschenhagen reads from his Book, Entscheidung. 9.10, Weather and News.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**). Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).—**11.41 a.m.,** Concert by the Wireless Orchestra, conducted by Nico Treep: Overture, Mignon (Thomas); Ein Schubert Abend in Alt-Wien (Ralf); Serenade (Braga); Spring Song (Gounod); Kazak (Bullérian); Szumka (Bullérian); Waltz, Telegramme (Joh. Strauss); Capricieuse (Gillet); Gavotte (Gossec); Selection from Martha (Flotow); Melody (Kálmán); Schöne lachende Frauen (Lehár); Melody (Dauber); Selection from Schön ist die Welt (Lehár). In the intervals, Light Music on Gramophone Records. **1.55 to 2.10,** Interval. 2.10, Concert (contd.): Robert Stolz Potpourri (Dostal); Frühlingskinder (Blankenburg). 2.40, Programme for Women. 3.25, Light Music on Gramophone Records. 3.40, Programme for Hospitals. 4.10, Pianoforte Recital by Coba Rijneke. 4.40, Programme for Children. 5.10, Concert of Light Music by Kovacs Lajos and his Orchestra, with Songs by Bob Scholte. 6.10, Sports Talk. 6.40, An Electoral Address. 7.10, English Lesson. 7.40, Time Signal. 7.41, News Bulletin. 7.45, Popular Music on Gramophone Records. 7.55, Concert by the Concertgebouw Orchestra, relayed from the Concertgebouw, Amsterdam. Conductor: Dr. Willem Mengelberg: Suite in D (Bach); Cantata, Non sa che sia dolore (Bach); Symphony, No. 4 (Mahler). 10.10, Variety Music on Gramophone Records. 10.40, News Bulletin. 10.50, Concert of Light Music. 11.40 (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.40 a.m. to 1.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). 11.40, Police Announcements. 11.55, Orchestral Concert: Rakoczy March (Liszt); Overture, Au printemps de la vie (Mouton); Suite, Walzerflut (Fetras); Two Icelandic Melodies (Svendsen); Selection from Rose Marie (Friml); Gramophone Records: Overture, Le Roi l'a dit (Delibes); Selection from Die Meistersinger von Berlin (Lincke); Promenade de plage (Zeilbeck); Selection from Casanova (Strauss). 1.40 till Close Down, Programme of the Christian Radio Society (N.C.R.V.). 1.40, Lesson in Handicrafts. 2.40, Talk for Women. 3.10, Interval. 3.40, Bible Reading, Songs and Organ Solos. 4.40, Harmonium Recital by P. W. Emmelot: Prelude and Fugue in E (Bach); Choral (Bach); Andante molto, Andante, Allegro moderato and Largamente from Heures mystiques (Boëllmann); Gramophone Records; Offertoire in E (C. Franck); Fugue in A Flat (Bach); Prelude in B Minor (Bach); Choral Herzlich tut mich verlangen (Bach). 5.25, Handwork for Young People. 5.55, Talk. 6.25, Dressmaking Lesson. 6.40, Talk. 7.10, Police Announcements. 7.25, The St. Matthew Passion—Oratorio (Bach), relayed from **Haarlem.** In the interval, News. 10.40, Popular Music on Gramophone Records. 11.10 (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**7.30 p.m.,** Concert. 8.0, Weather. Racing Results and News. 8.15, Radio Concert. 10.0, Tourist Talk in German. **11.0 to 12 midnight,** Programme in English by the I.B.C. **12 midnight** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

408 metres; 16 kW.—**6.0 p.m.,** Sports Talk. 6.15, Announcements and Popular Music on Gramophone Records. 6.25, Boy Scouts' Report. 6.30, See **Warsaw.** 8.30, The Burgomaster's Daughter—Radio Play (Morcinek). 9.20, See **Warsaw.** 9.35, Dance Music. 10.0, **Dance Music from the Café Monopol.**

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—**7.20 p.m.,** Popular Programme. 7.40, Sports Notes. 7.50, Talk in Esperanto: Life in Lithuania. 8.10, Concert. 9.30 (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW; **and Helsinki, 815 kc/s, 368.1 metres.**—**5.15 p.m.,** Concert by a Students' Choir, conducted by Professor Heikki Klemetti and Martti Turunen. 7.45, News in Finnish. 8.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Orchestral Concert, conducted by Kühn. In the interval at **1.0 p.m.,** News. 1.30, Sponsored Programme with Gramophone Records. 2.30, Economic Notes and Time Signal. 2.50, Programme for Children. 3.15, Review of New English Books. 3.35, Talk on Contemporary Authors. 4.0, Concert of German Chamber Music, with Introductory Talk. 5.20, French Conversation. 5.45, Weather, Time, Economic Notes and Sports Results. 6.0, Talk: Colonies of Rare Animals in Germany. 6.20, Talk: The Exhibition Woman in Berlin. 6.30, Talk: The Purchasing Power of the Employer and Unemployment. 6.55, News. 7.0, The World on Gramophone Records—Grinzing. 7.35, Reading of Modern Austrian Literature. 8.0, Concert of Westphalian Folk Music by Two Choirs and a Peasant Orchestra. Soloist: Paul Schröder (Songs to the Lute) 9.0, News and Sports Notes. 9.20, Serenade and Dance Music, conducted by Eysoldt. 11.0 (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**12.15 p.m.,** Classical Music on Gramophone Records, followed by Exchange Quotations. **1.0 p.m.,** Film Review. 1.30, Talk for the Unemployed. 2.0, A Fairy Story for Children. 2.35, Economic Notes. 3.0, Orchestral Concert, conducted by Theodor Blumer; Soloist: Willy Schmidt (Tenor): Overture, Die Opernprobe (Lortzing); Selection from The Jewels of the Madonna (Wolf-Ferrari); Songs: (a) Willkommen, du Gottes Sonne (Curschmann), (b) Erscheine noch einmal (Curschmann), (c) Auf dem Meere Franz), (d) Die blauen Frühlingsaugen (Franz); Two Pieces from Sonntag auf dem Lande (Gade): (a) Waldeinsamkeit, (b) Humoresken; Waltz from Boccaccio (Suppé); Songs: (a) Ich denke dein (Weber), (b) Bach, Echo und Kuss (Weber), (c) Der Maikäfer, Op. 64, No. 1 (Loewe); Herz mach auf die Tür, from Der lustige Krieg (Joh. Strauss); Glühend erblicke ich dich hier, from Cagliostro aus Wien (Joh. Strauss); Waltz from Märchen aus Alt Wien (Ziehrer). 4.30 **to 4.35,** Weather and Time. 4.50, Economic Notes. 5.15, Taxation Notes. 5.30, Spanish Lesson. 5.50, Programme to be announced. 6.0, Wind Instrument Concert, conducted by Ernst Roth: Potpourri, Kriegerleben (Zwicker); Xylophone Solo, Herzklopfenpolka (Riedel); An der Schlei (Kiesler); Unsere Grenadiere (Blankenburg); Potpourri, Flott, heiter (Wippert). 7.0, The Black Galley—Radio Play (after Wilhelm Raabe's Story, arr. Henrik Herse). 8.10, News. 8.20, Fritz Theil Concert by the Leipzig Symphony Orchestra, conducted by the Composer; Soloists: Hans Dünschede (Violin) and Georg Winkler (Organ): Prelude; Violin Concerto in D; Moderne Lustspiel-Ouvertüre. 9.20, News. 9.30 (approx.), Orchestral Concert, conducted by Hilmar Weber: Prelude to Die Abreise (d'Albert); Karnevalminiaturen (von Kaskel); Waltz, Moonlight on the Alster (Fetras); Selection from Jadwiga (Dellinger); March (1813), Das getanzte Festmahl (Schettler). 10.30 (approx.), Close

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.,** Talk on Economics. 6.30, The Letter Box. 7.0, Choral Concert, relayed from **Trbovlje.** 9.0, Time, News and Light Music.

LWOW

788 kc/s, 381 metres; 16 kW.—**6.30 p.m.,** See **Warsaw.** 7.0, Concert by the Conservatoire Quartet. 7.45, Concert from **Warsaw.** 9.35, New York and Old Vienna—Pianoforte Recital by Jasza Berenzon. 9.55, See **Warsaw.** 10.0, Dance Music from the Bagatela Variety Theatre. 11.0 (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW. —**6.30 p.m.,** Radio Gazette for Lyons and the South-East. 7.30, Dramatic Programme: Amours—Play (Paul Nivoix). After the Programme, News Bulletin.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Programme relayed from **Madrid (Union Radio).** In the interval, Radio Chronicle. 12 **Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations and Programme for Children. 8.15, News Bulletin and Political Review. **8.30 to 9.0,** Interval. 9.0, Linguaphone English Lesson. 9.30, Chimes, Time Signal, Political Review and Band Concert, relayed from the Hotel National. 11.45, News Bulletin. 12 **Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**3.10 p.m.,** See **Brno.** 4.50, Light Music on Gramophone Records. 5.0, Talk: The Olympic Games in Antiquity. 5.15, See **Prague.** 5.30, German Transmission: Talk on the Abolition of Slavery. 6.0, See **Prague.** 6.25, Concert by the Station Orchestra. 6.55 till Close Down, See **Prague.** 10.0 (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nurnberg, 1,256 kc/s, 239 metres.**—**2.50 p.m.,** Weather and Agricultural Notes. 3.0, Concert of Old Chamber Music by the Raba String Quartet and Soloists. 3.35, Talk: The Painter Jogeph Stieler. 4.0, Concert by the Pforzheim Symphony Orchestra, conducted by Julius Schröder. Soloist: Erwin Pohl (Trumpet): Overture, If I were King (Adam); Selection from a La Travita (Verdi); Concertino for Trumpet (Gräfe); Emperor Waltz (Joh. Strauss); Selection from Faust (Gounod); March, Der Strassenjunge (J. Bernads). 5.15, Talk: Travelling in the Malay Archipelago. 5.35, Agricultural Talk. 5.55, Time, Weather and Agricultural Notes. 6.5, Talk: Heinrich von kleist. 6.25, Concert by a Schrammel Trio with Song Refrains. 6.50, (from **Nürnberg**), Concert by a Nazi Storm Troops Band: Conductor: Anton Lobenhofer; March (Fürst); Festival Overture (Leutner); March and Chorus from The Magic Flute (Mozart); Potpourri of Patriotic Songs (Kreisel); Prince Engene March (Liepe); March, Heil Franken (Feist). 7.55, Robert Gniskard—Short Play (Kleist). 8.45, Sonata in C, Op. 1, for Pianoforte (Brahms), by Walter Lampe. 9.20, Time, Weather, News and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**4.15 p.m.,** 'Cello and Clarinet Recital by Leif Holmboe and Jan Berge: Melody (Palmgren); Gavotte (Lully); Old Melodies (Sinding); Dedication (Popper). 5.0, German Lesson. 5.30, Studio Service. 6.0, Announcements, Weather and News. 6.30, Trio Concert of Popular Music and Dances. 7.0, Time Signal. 7.2, Agricultural Talk. 7.30, Concert relayed from **Trondheim, 605 kc/s (495.8 metres).** 8.0, A Sketch. 8.40, Weather and News. 9.0, Topical Talk. 9.15 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**7.0 p.m.,** Dopolavoro Announcements, Agricultural Report and Giornale Radio. 7.20, Light Music on Gramophone Records. 7.30 (in an interval), Time Signal and Announcements. 7.45, Operetta Music: Selection from: (a) Les Saltimbanques (Ganne), (b) Countess Maritza (Kálmán), (c) La Vergine rossa (Cuscina), (d) Duchessa del Bal Tabarin (Lombardo). In the interval at 8.30, Se tu non m'amis—Comedy in One Act (P. Riccora). 9.55, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.,** Talk on the Theatre. 6.0, Le Journal Parlé. 7.20, Weather Forecast. 7.30, Gramophone Concert. Part I: Massenet Programme: Extracts from (a) Thaïs, and (b) Le Jongleur de Notre Dame; Part II: Variety Music: Potpourri of Popular Hungarian Songs (Geczy); Melody from the Prodigal Son (Wormser); The Parade of the Tin Soldiers (Jessel); Hungarian Foxtrot, Vinka (Coste); Hatschi-Hatschi (May); Tales from the Vienna Woods (Joh. Strauss); Noctambula (Ziehrer); Mi chambre separée (Heuberger); Memories of Juan-les-Pins (Carrara); Tango, Memories of (Pesents); Souvenir de Ronen; Carmosa (Pesents); Souvenir de Ronen; Rallye Ardennes. 9.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.0 p.m.,** Programme for Children. **6.30,** Popular Music on Gramophone Records. **7.0,** Agricultural Talk. **7.15,** Interval. **7.30,** Le Prof' d'anglais—Comedy in Three Acts (Régis Gignoux). **9.30,** News.

PARIS

RADIO PARIS (C.F.R), 174 kc/s, 1,725 metres; 75 kW.—**5.45 a.m.,** Physical Culture. **6.30,** Weather and Physical Culture. **6.45,** Norwegian Dances (Grieg) on Gramophone Records. **7.0,** Press Review and Weather. **11.0,** Protestant Address. **11.30,** Orchestral Concert: Jeux d'enfants (Bizet); En voyage (Gabriel Marie); Orchestral Suite, Le Roi Pansole (Honegger); Intermezzo from Arsène Lupin Banquier (Lattes); Lover come Back to me, from New Moon (Romberg); Selection from Trois jeunes filles nues (Moretti); Entr'act from Passionnément (Messager); Selection from Oh Kay (Gershwin). In the intervals at **12 Noon,** Exchange, News, and Weather, and at **12.30 p.m.,** Exchange. **1.0,** Exchange. **2.45,** Exchange and Market Prices. **4.45,** Agricultural Report. **5.0,** Protestant Sermon by the Reverend Marc Boegner, relayed from the Reformed Church. **5.30,** Market Prices. **6.0,** Dialogue; Literature and the Theatre. **6.20,** Orchestral Concert: Suite Miniature (Coppola); Hommage à Rameau (Debussy); March from Sigurd Jorsalfar (Grieg). **6.45,** German Press Review. **7.0,** Love—Comedy (Kistemaekers). In the interval at **7.30,** News and Weather. At **7.40,** Review by Bonnaud. **8.15,** Press Review and News. **9.0,** Gramophone Concert: The Whistler and his Dog (Pryor); Piece, A la patisserie du coin (Chepfer); Le Cancion del Olvido (Serrano); Consultation Scene from Le Médecin malgré lui (Molière); La vengeance du nain vert (Betove); Cradle Song (Zimmermann); Piece, the Flight of the Bumble Bee (Rimsky-Korsakov); La ronde des lutins (Bazzini); Les arènes de lutte (Bontemps); Polka, The Doll (Warek); Humorous Sketch, Œufs à la coque, Cupid on the Cake.

PITTSBURGH

WESTINGHOUSE ELECTRIC, KDKA, 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.0 p.m.,** Work-a-day Thoughts. **9.5,** Business News. **9.15,** Ballroom Promenade. **9.30,** Weather Report. **9.32,** Market Reports. **9.45,** Blue Ridge Buddies. **9.57,** David Lawrence Dispatch. **10.0,** Programme to be Announced. **10.15,** Dick Daring, from **New York. 10.30, Singing Lady,** from **New York. 10.45,** Little Orphan Annie. **11.0,** Our Daily Food—George Rector's Cooking School, from **New York. 11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** KDKA Orchestra. **11.45,** To-day's News by Lowell Thomas, from **New York. 12 Midnight,** Pepsodent Amos 'n' Andy, from **New York. 12.15 a.m. (Friday),** Concert Footlights. **12.45,** The Townsend Murder Mystery. **1.0 to 4.1, New York** Relay. **1.0,** Captain Diamond's Adventures. **1.30,** Time Signal and Rin-Tin-Tin Thrillers. **1.45,** Thurston, the Magician. **2.0,** Death Valley Days. **2.30,** Wayne King's Orchestra, with Lady Esther. **3.0,** Carson Robison's Pioneers. **3.15,** Vic and Sade. **3.30,** Homay Bailey and Orchestra. **3.45,** Prof. McLallen, Sara and Sassafras. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12,** Weather Report. **4.13,** KDKA Artist Bulletin. **4.15,** Press Last Minute News Flashes. **4.20,** Bertha Schmid (Soprano). **4.30,** Josef Lhevinne (Concert Pianist), from **New York. 5.0,** Smith Ballew and his Orchestra. **5.15,** KDKA Artist Bulletin. **5.17,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

POZNAN

397 kc/s, 335 metres; 1.9 kW.—**6.28 a.m.,** Time Signal. **6.30,** See **Warsaw. 7.0,** Mezzo-Soprano Song Recital. **7.30,** Duet from The Bartered Bride (Smetana). **7.45,** Weinen und Klagen Cantata (Bach). In the intervals, Theatre Guide and Announcements and Press Review from **Warsaw. 8.30,** Dramatic Programme from **Katowice (734 kc/s, 408 metres). 9.15,** Talk. **9.30,** Time, Sports and Police Report. **9.45** (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**3.10 p.m.,** See **Brno. 4.10,** Talk on Economics. **4.20,** See **Brno. 4.50,** Variety Music on Gramophone Records. **5.5,** Talk for Gardeners. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission: Review of New Books and Agricultural Report. **6.0,** Chimes. **6.1,** News. **6.10,** English Lesson. **6.25,** Concert by the Slav Vocal Octet. Russian Folk Songs and Songs by Gustav Pechar. **6.55,** Talk on the following Transmission. **7.0,** Marriage—Comedy in Three Acts (Gogol). Translation by B. Mathesius. In the interval at **8.0,** Time Signal. **9.0,** Time Signal. **9.1,** News Bulletin. **9.15,** Organ Recital by Professor B. Wiedermann, relayed from the Beranek Cinema. Invitation to the Waltz (Weber); Two Melodies (Moszkovsky); Rustle of Spring (Sinding); Spring Song (Mendelssohn); Waltz, Frühlingsstimmen (Joh. Strauss); Nocturne (Mendelssohn). **10.0** (approx.), Close Down.

RABAT

721.1 kc/s, 416 metres; 6 kW.—**12.30 p.m.,** Concert. **2.0 to 2.30,** Interval. **3.30,** Talk for Children. **4.0,** Light Music on Gramophone Records. **5.0 to 7.0,** Interval. **7.0,** Arab Programme: News and Gramophone Records. **7.45,** Weather and News. **8.0,** Concert: Overture, To the Story of the Lovely Melusina (Mendelssohn); Waltz (Widor); Scherzo (Mussorgsky-Salabert); Nedda's Ballad from I Pagliacci (Leoncavallo); Selection from The Bartered Bride (Smetana); Violin Solo: Grave (Friedemann Bach); Song (Debussy); Suite from Agnès Dame galante (Février-Mouton); La Procession (César Franck); Feuille d'Album (Chebrier-Ciarmettes); Seville (Albeniz-Salabert); Les Saisons (Massé); Danse macabre (Saint Saëns-Mouton). **10.0,** Relay or Light Music on Gramophone Records.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW; **lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—**5.0 p.m.** (from **Geneva**), Sports Talk. **5.20** (from **Geneva**), Esperanto Lesson. **5.35** (from **Lausanne**), Italian Lesson. **6.0** (from **Lausanne**), Weather, News and Announcements. **6.30** (from **Lausanne**), Theatre Notes. **7.0 to 9.0** (from **Geneva**), Bach Memorial Programme. **7.0,** Pieces for Harpsichord and Viola: (a) Prelude and Fugue in B Minor, (b) Sonata in G Minor for Viola. **7.25,** Introductory Talk to the following Concert. **7.40,** Concert by the Jean Sébastien Bach Society and the Station Orchestra, relayed from the Conservatoire: Missa brevis in F; Cantate, Meine Seele rühmt und preist; Cantata, No. 208. **9.0,** News and Weather. **9.15** (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—**8.30 p.m.,** Weather Report. **8.40,** Musical Programme and Announcements. **9.0,** Chimes. **9.2,** News Bulletin. **9.30,** Reading. **10.0,** Concert by the Station Quartet, followed by Arias and Popular Music on Gramophone Records.

RIGA

572 kc/s, 525 metres; 15 kW.—**6.5 p.m.,** Viennese Concert. **7.0,** News. **7.20,** Concert of Latvian Songs by a Students' Choir, relayed from the University. **8.0,** Weather and News. **8.15,** Viennese Concert (contd.): Donauweibchen (Joh. Strauss); Waltz, Tales from the Vienna Woods (Joh. Strauss). **8.30,** Popular Music. **9.30** (approx.), Close Down.

SALZBERG.—See **Vienna.**

ROME

680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,910 kc/s, 25.4 metres.**—**6.45 a.m.,** Gymnastics. **7.15 to 7.30,** Giornale radio and Announcements. **11.30,** Weather and Popular Music on Gramophone Records. **12 Noon,** Time and Announcements. **12.5 to 1.15 p.m.,** Orchestral Concert. In the interval at **12.30,** Giornale radio and Exchange. **3.45,** Children's Radio Review. **4.10,** Announcements. **4.15,** Exchange and Giornale radio. **4.30,** Orchestral Concert: Selection from Alessandro Stradella (Flotow); Festa tzigana (Ricciardi); Selection from Mephistopheles (Boito); Fiuchi fatui (Giordano); French Rondo (Boellmann); Eau courante (Massenet); Melody (Caslar); Radio Onestep (Fiorillo). **5.15 to 5.45,** Interval. **5.45** (from **Naples**), Shipping and Sports Notes. **5.55,** Agricultural Report and Dopolavoro Notes. **6.15,** Giornale radio. **6.30,** Address. **7.0,** Time and Announcements. **7.2,** Reading. **7.15,** Variety Music on Gramophone Records. **7.30,** Sports Notes and Tourist Report. **7.45,** Symphony Concert, conducted by Vittorio Gui. In the interval, Literary and Art Notes. **9.55,** News.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.**—**12 Midnight,** Southern Jubilee Quartet. **12.15 a.m. (Friday),** Stock Reports. **12.30,** Gold Medal Band. **12.35,** Robert Rissling (Baritone). **12.45** till Close Down, **New York** Relay. **12.45,** The Goldbergs. **1.0,** Fleischmann Hour. **2.0,** Capt. Henry's Show Boat. **3.0,** Lucky Strike Dance Hour.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40** (from **Basle**), Jazz Music and Sound Film Music on Gramophone Records. **12.35 p.m.,** Weather and Exchange. **12.45 to 2.30,** Interval. **2.30** (from **Berne**), Talk for Housewives. **3.0** (from **Berne**), Light Music on Gramophone Records. **3.45** (from **Berne**), Literary Talk. **4.0** (from **Berne**), Cinema Organ Recital on Gramophone Records. **4.30,** Weather. **4.35 to 5.30,** Interval. **5.30** (from **Basle**), Talk: Hiking and Hostels for Young People. **6.0,** Time, Weather, and Traffic Report. **6.15** (from **Basle**), Elementary Italian Lesson. **7.0** (from **Zürich**), Introductory Talk to the following Relay. **7.15** (from **Zürich**), Concert of Chamber Music, conducted by A. Schnichel; Soloists: Alice Frey (Songs) and Richard Sturzenegger ('Cello). **8.10** (approx.), In an interval, Weather and News. **9.0** (from **Basle**), Gramophone Concert of Old and New Popular Music. **9.30** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**4.5 p.m.,** Talk on Advent and Palm Sunday. **4.30,** Programme for Children. **4.45,** Popular Music on Gramophone Records. **5.45,** Elementary English Lesson. **6.15,** Weather and News. **6.30** (from **Göteborg**), Political Talk. **7.0,** Concert by the Stockholm Students' Choral Society. Soloist: Martin Ohman. **8.25,** Talk by Prince Carl. **8.45,** Weather and News. **9.0,** Orchestral Concert of Russian Music: Extracts from the Suite, Caucasian Sketches (Ippolitov-Ivanov); Valse des fleurs (Tchaikovsky); Spanish Serenade (Glazunov); Prelude in C Sharp Minor (Rachmaninov); Potpourri of Russian Gipsy Melodies (Artemiev); Vocal Tango (Spoliansky); Waltz (Dukelsky); Overture, A Life for the Czar (Glinka). **10.0** (approx.), Close Down.

STRASBOURG

PTT, 869 kc/s, 345 metres; 11.5 kW.—**10.30 a.m.,** Oscar Straus Memorial Concert on Gramophone Records. **11.0,** Orchestral Concert, conducted by Maurice de Villers. Soloists: M. Roskam ('Cello) and M. Caron (Oboe). Part I: Overture, Raymond (Thomas); Romance for 'Cello and Pianoforte (Dumas); Orchestral Suite, Monsieur de Pourceaugnac (Bastide); La Vannina (Bastide). **11.45,** News. **12 Noon,** Time and Exchange. **12.5 p.m.,** Orchestral Concert: Part II: Benjamin Godard Music: Legendary Symphony; Symphonic Suite; Scottish Scenes for Oboe and Orchestra; Dance Suite. **1.0,** Programme for Children. **2.0 to 3.15,** Interval. **3.15,** French Elocution Lesson. **3.30,** Programme for Children, relayed from **Bordeaux-Lafayette. 5.0,** Talk in German: The Cause of France's Unity. **5.15,** Talk in French for Women. **5.30,** Orchestral Concert of Jazz Music, conducted by Roskam. **6.30,** Time and News. **6.45,** Variety Music on Gramophone Records. **7.20,** Lottery Results. **7.30,** Ronsard and Verlaine Programme, relayed from the Hector Berlioz Hall. Soloists: Gabrielle Gills (Songs) and Jacques Copeau (Recitations). Part I: Ronsard Programme: Recitation of Sonnets and Lyrics; Songs (Poulenc): (a) Attributs, (b) Le tombeau, (c) A son page. Songs: (a) Chanson (Honegger), (b) Donx fut le trait (Caplet), (c) Ronsard à son âme (Ravel). Part II: Verlaine Programme: Melodies (Fauré): (a) Spleen, (b) En sourdine, (c) Prison, (d) Mandoline. Recitation: Sagesse; Songs (Debussy): (a) Clair de lune, (b) L'échelonnement des haies, (c) Extase, (d) Mandoline Recitations. **9.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**2.30 p.m.,** Programme for Children. **4.0,** (from **Pforzheim**), Concert by the Pforzheim Symphony Orchestra, conducted by Julius Schröder. Soloist: E. Pohl (Trumpet). Overture, Si j'étais Roi (Adam); Selection from La Traviata (Verdi); Concertino for Trumpet (Gräfe); Selection from Faust (Gounod); March, Street Boy (Bernads). **5.0,** Time, Weather and Agricultural Notes. **5.10,** Talk: Old Palm Sunday Customs. **5.35,** Talk: The Wanderings and Adventures of a Young Man from Ulm. **6.0,** Time, News and Light Music on Gramophone Records. **6.30** (from **Freiburg**), Talk with Gramophone Records: With the Small Cruiser Cormoran in the South Seas. **7.0** (from **Mannheim**), Johann Strauss Concert by the Mannheim Philharmonic Orchestra, conducted by Rudolf Bonvka: Overture, A Night in Venice; Selection from The Gipsy Baron; Blütenlese—Potpourri of Strauss Waltzes; Emperor Waltz; Delirien-Walzer; Overture, Die Fledermaus. **8.0,** See **Langenberg. 9.20,** Time, News, Weather and Programme Announcements. **9.40,** Brahms Concert by Otto Seyfert (Pianoforte), Georg Beervald (Violin) and Max Zimolong (French Horn): Four Ballads for Pianoforte: (a) No. 1 in D Minor, (b) No. 2 in D, (c) No. 3 in B Minor, (d) No. 4 in B; Trio in E Flat, Op. 40, for Pianoforte, Violin and French Horn. **10.30** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**6.30 p.m.,** Chansonnettes. **6.45,** Accordion Music. **7.0,** Orchestral Concert. **7.30,** Opera Music: Selection from: (a) La Favorita (Donizetti), (b) Hamlet (Thomas), (c) La Dame blanche (Boieldieu). **7.45,** Military Music. **8.0,** Extracts from Ciboulette—Operetta (Hahn). **8.30,** Music by a Viennese Orchestra. **9.0,** Variety Music. **9.15,** North-African News. **9.30,** Concert for Listeners in Morocco. In a Monastery Garden (Ketelbey); Song from L'Attaque du Moulin (Bruneau); Seven Stars (Sinkely); Air from Le bon Roi Dagobert (Rousseau); Clair de lune; Je vous aime (Bonnaquet); Quand refleurira le lilas blanc (Lapelle). **10.0,** Operetta Music. **10.15,** Organ Solos. **10.30 to 11.0,** Programme in English by the I.B.C.: W. Brown-Constable, announcing. **10.30,** Hawaiian Music: My Waikiki Mermaid; Hawaiian Skies are gleaming; La Paloma; Pasadena Rose; O sole Mio; Lite; Maria Marj; Poor Kid. **10.57,** I.B.C. Goodnight Melody. **11.0,** News, Weather and Announcements. **11.5,** Dance Music. **11.15,** Tangos. **11.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**4.10 p.m.** till Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**4.10 p.m.,** Orchestral Concert. **5.0 to 5.35,** Interval. **5.35,** Giornale radio, Agricultural Report, and Dopolavoro Announcements. **6.0,** Time and Giornale radio. **6.30,** Religious Address. **7.0,** Announcements, Giornale radio, Weather, and Gramophone Records. **8.0,** Mignon—Opera in Four Acts (Thomas), relayed from the Scala, Milan. In the intervals, Talk, Literary Notes, and Giornale radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,969 kc/s, 50.26 metres (Evening);** 15 kW.—**10.0 to 10.15 a.m.,** Religious Information in French. **7.0 to 7.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**5.55 p.m.,** Talk: Seventy Years of the Vienna Music Academy. **6.20,** Time, Weather and Programme Announcements. **6.30,** Weekly Report. **6.55,** Quartet Concert: Minuet (Hummel); Gavotte (Brandt-Buys); Gondelse (Richter); Gavotte, Liebesgeheimnis (Komzak); Schlaflied (Müller); Selection from Jabuka (Joh. Strauss); Polka, Pfeifer (Karl Kapeller); Viennese Song (Lehnes); Gallop, Carrière (Jos. Strauss). **7.35,** Talk: Three Years among the Canadian Eskimaux. **8.0,** Wagner Concert by the Vienna Symphony Orchestra, conducted by Karl Linderieth. Soloist: Albert Lohmann (Baritone): Overture, Tannhäuser; Monologue from The Flying Dutchman; Prelude to Tristan und Isolde; Wotan's Farewell; The Ride of the Valkyries and Fire Magic from The Valkyries; Prelude to The Mastersingers. **9.30,** News. **9.45,** Snow Report. **9.55,** Dance Music from the Café Sacher.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Popular Music on Gramophone Records. **11.30,** Weather Forecast. **11.35,** Concert for Schools by the Warsaw Philharmonic Orchestra, conducted by C. Wilkomirsky, the Harfa Choir, and B. Rutkowsky (Organ): Introductory Talk by M. Mayzner: Overture, Iphigenia in Aulis (Gluck); Air (Bach); Gavotte from the Concerto grosso in D Minor (Händel); Ave verum (Mozart-Tchaikovsky); Organ Solos: (a) Passacaglia in G Minor (Muffat), (b) Chorale (Bach), (c) Fugue in D Minor (Bach); Choir: (a) Song (Palestrina), (b) Sepulto Domino (Gorszyrky), (c) Sanctus from Missa brevis Pakiel). **1.0 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.25,** Light Music on Gramophone Records. **2.35,** Talk: Mothercraft Schools. **2.50,** Popular Music on Gramophone Records. **3.20,** Intermediate French Lesson. **3.40,** Talk: The Man in the Iron Mask. **4.0,** Light Music on Gramophone Records. In the interval, Announcements. **4.40,** Topical Talk. **4.55,** Programme Announcements. **5.0,** Talk on History. **5.20,** News. **5.25,** Light Music, relayed from the Café Adria. **6.0,** Miscellaneous Items. **6.20,** Agricultural Talk. **6.30,** Reading. **6.45,** Radio Journal. **7.0,** Concert by the Station Orchestra, conducted by S. Navrot; Soloists: A. Stromberg (Clarinet) and L. Urstein (Pianoforte): March (Sousa); Small Suite No. 1 (Micheli); Serenade (Grünfeld); Clarinet Solos: (a) Concert Piece (Neibig), (b) Waltzes (Wiedemann); Operetta Potpourri (Kálmán); Clarinet Solos: (a) Canzone (Stark), (b) Variations (Berr); Waltz intermezzo from Naila (Delibes); Intermezzo, Bib et Bob (Demret); Mazurka (Namyslowsky). In the interval, Sports Notes and Radio Journal. **8.30,** Dramatic Programme, relayed from **Katowice, 734 kc/s (408 metres). 9.15,** Dance Music. **9.55,** Aviation Weather Report and Police Notices. **10.0,** Dance Music.

ZURICH.—See **Schweizerischer Landessender.**

FRIDAY

APRIL THE SEVENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Three plays: "A Visitor from Down Under," from the short story by L. P. Hartley, "The Pyramid," by N. Edwards, and "The Piper," by H. Ferrers.
LONDON REGIONAL	Royal Philharmonic concert from the Queen's Hall.
MIDLAND REGIONAL	"Easter Calling!" by John Capel.
NORTH REGIONAL	Relay from the Royalty Theatre, Chester.
BELFAST	"The Broadcast Bran-Tub," feature programme.

ABROAD

BRESLAU	8.10 p.m. Extract from Opera: "Abu Hassan" (Weber).
BRUSSELS (No. 1)	7 p.m. The Station Symphony Orchestra, conducted by A. Meulemans.
BUCHAREST	7.20 p.m. The Philharmonic Orchestra, conducted by Perlea.
HAMBURG	7 p.m. Heinrich Kaminski concert, conducted by the composer.
HEILSBERG	8 p.m. The Opera House Orchestra, conducted by L. Leschetizky.
LANGENBERG	7 p.m. Winter Relief concert from Duisberg.
PALERMO	7.45 p.m. Opera: "Mary Magdalene" (Pedrollo).
RADIO-PARIS	7.45 p.m. Concert of chamber music.
TURIN	8 p.m. Symphony concert, conducted by D. Amfitheatrov.
WARSAW	7.20 p.m. European concert, conducted by M. Fitelberg. Also relayed by **Brussels No. 2, Budapest, Huizen, Lahti, Vienna, Prague,** and other stations.

ALGIERS

824 kc/s, 364 metres; 13 kW.—**7.0 p.m.,** Financial News. **7.10,** Shipping Notes. **7.15,** Agricultural Report and Weather Forecast. **7.20,** Agricultural Talk. **7.35,** Songs from (a) Les Brigands (Offenbach), (b) Nina Rosa (Romberg), (c) Manon Lescaut (Puccini). **7.55,** News Bulletin. **8.0,** Time Signal. **8.2,** Medical Talk. **8.15,** Saint-Saëns Concert by the Station Orchestra: Overture, La Princesse Jaune; Concerto for 'Cello and Orchestra. **8.45,** News Bulletin. **8.50,** Saint-Saëns Concert (contd.), Symphonic Poem, Phäeton; Romance for Flute and Orchestra; Symphonic Poem, La Jeunesse d'Hercule. **9.30,** News Bulletin. **9.45,** Light Music. **9.55,** News. **10.0** (aprox.), Close Down.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Forecast, Stock Report, and Popular Music on Gramophone Records. **6.0,** Variety Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News. **7.30,** Time Signal. **7.31,** Talk on Gardening. **7.45,** Talk: A Hedge School. **8.0,** Concert of Light Music, by the Station Orchestra. **8.30,** Vocal Duets by Mr. and Mrs. P. J. Duffy. **8.45,** Pianoforte Recital by Fran T. Fleischmann. **9.5,** Vocal Duets by Mr. and Mrs. P. J. Duffy. **9.20,** Station Orchestra. **9.30,** Blarney—One-Act Comedy by the Emer Comedy Company. **10.0,** Variety Programme. **10.30,** Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**6.0 p.m.,** Trio Concert. **7.0,** Dance Music relayed from the Ritz Hotel. **7.30** (in an interval), Exchange Quotations. **8.0,** Light Music on Gramophone Records, followed by News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, Messages to Seamen, Exchange Quotations and Market Prices. **9.10,** Concert by the Station Orchestra: March (Siede); Bells across the Meadow (Ketelbey); Selection from El señor Luis, el Tumbon (Barbieri); Overture, The Thieving Magpie (Rossini). **9.30,** Song Recital by Raquelita. **10.0,** Reading. **10.15,** Orchestral Concert, relayed from the Café Español. **11.0** (in an interval), News Bulletin. **12.0 Midnight** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**7.0 p.m.** Agricultural Report, Tourist Talk, and Dopolavoro Announcements. **7.20,** Giornale Radio and Weather Forecast. **7.30,** Time Signal and Announcements. **7.35,** (approx.), Concert of Opera Music: Selection from Il Guarany (Gomez); Tenor Aria from Mignon (Thomas); Soprano Solo: Salve Regina (Van Westerhout); Selection from Madame Sans-Gêne (Giordano); Tenor Aria from Mephistopheles (Boito); Soprano Aria from Rigoletto (Verdi); Selection from La Bohème (Leoncavallo); Overture, Joan of Arc (Verdi); Tenor Aria from The Pearl Fishers (Bizet); Soprano Solo from La Traviata (Verdi); Selection from La baronessa di Carini (Mule); Tenor Aria from La Bohème (Puccini); Soprano Aria from Tosca (Puccini); Selection from Le Maschere (Mascagni). In the interval: Theatre Notes. **9.30,** Concert, relayed from the Grand Hotel Moderno. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.0 p.m.,** Talk for Sokols. **6.30,** Radio Play. **7.0,** Introductory Talk and European Concert, relayed from **Warsaw. 9.0,** News Bulletin, followed by Dance Music on Gramophone Records.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert from **Berlin (Witzleben). 2.0,** Talk for Girls. **2.30,** Weather and Exchange. **2.45,** Reading from Wilhelm Lehmann's Book, Weingott. **3.0,** Talk: The Village School. **3.30,** See **Leipzig. 4.10,** Talk: The Crisis of 1917 in France after Poincare's Diaries. **4.30,** Talk: Great German Mystics. **5.0,** Pianoforte Quartet in E, Op. 6 (Hermann Götz). **5.30,** Reading from the Writings of an Unemployed Worker. **5.55,** Weather Forecast and Announcements. **6.0,** Talk on Colonies. **6.30,** A Poem. **6.35,** See **Breslau. 7.0,** See **Berlin (Witzleben). 7.30,** Popular Concert by Alois Pachernegg and his Orchestra: Overture, Figaro (Mozart); Aquarellen-Walzer (Jos. Strauss); Minuet (Beethoven); Turkish March (Beethoven); Selection from Der Kuhreigen (Kienzl); Hungarian Dances Nos. 3, 5 and 6 (Brahms); Prelude to Eva (Lehár); Waltz, Krolle Ballklänge (Lumbye); Elegy (Bullerian); Selection from Countess Maritza (Kálmán); Two Viennese Songs: (a) s'Lercherl von Hernals (Ascher), (b) Wien wird schön erst bei Nacht (Stolz); Comedy Overture, Fahrend Volk (Lenschner). **9.0,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Concert of Old-time Dance Music from **Frankfurt. 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW. —**3.30 p.m.,** See **Leipzig. 4.30,** A Discussion on New Books. **4.50,** Musical Programme for Children. **5.20,** Axel Lübbe reads from his own Prose. **5.55,** The Witzleben Station informs its listeners. . . . **6.0,** Topical Talk. **6.10,** Talk: Life in a Beehive. **6.55,** Announcement. **7.0,** From the Gramophone Archives of the Witzleben Station—A Review of the Month of March. **7.30,** Spring Concert by the Kosleck Wind Instrument Society and the Erk Male Voice Choir, relayed from the Clou Konzerthaus; Conductor: Albert Rossow. **9.0,** Weather, News, and Sports Notes. **9.15** (approx.), Orchestral Concert, conducted by Willy Post, relayed from **Frankfurt-on-the-Oder:** March, Fürs Vaterland, Hurra (Schmeling); Selection from Oberon (Weber); Waltz, Die Werber (Lanner); March from the Suite (Laehner); Hungarian Rhapsody (Schmeling); March, Treu vereint (Linack). **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**3.10 p.m.,** See **Brno. 3.55,** See **Prague. 5.25,** Sports Review. **5.40,** Slovak Lesson for Czechs. **5.55,** Talk on Housing. **6.0,** See **Prague. 6.25,** See **Moravskà-Ostrava. 6.45** till Close Down. See **Prague. 9.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 1.5 kW.; and **Gleiwitz, 1,154 kc/s, 253 metres.—12.5 p.m.,** Weather Report. **12.10** (approx.), Japan in Opera and Operetta—Gramophone Concert. **12.45,** Time, Weather, and Exchange. **1.5,** Rondo—Serenade—Caprice, a Gramophone Concert. **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Talk for Young People: Film Experiences on the St. Bernard Pass. **3.10,** Orchestral Concert, conducted by Franz Marszalek. Soloist: Wilhelm Küchel (Tenor): Overture, Marinarella (Encik). Two Songs (L. Hess): (a) Vorahnsstimmung, (b) Weisst du noch?; Selection from Carmen (Bizet); Songs: (a) Die lyrischen Dichter (b) Drohung, (c) Viel Vögel sind geflogen, (d) Glanz und Duft; Wedding Waltz from Pierrette's Veil (Dohnanyi); Songs: (a) Mit deinen blauen Augen, (b) Fromm, (c) Erstes Grün, (d) Ich ging der Liebsten entgegen (Gleisberg); Country Dance (Chabrier); Songs (Warnbter): (a) Andenken, (b) Bitte; Ein Planderstündchen mit Delibes (Urbach). **4.30,** Market Prices. **4.32,** Talk: The Meteorological Bases of the Future Trans-Atlantic Air Traffic. **5.0,** Waldemar Glaser reads from his own Works. **5.30,** Programme to be announced. **6.0,** Talk by Dr. Curt Rosenblatt. **6.30,** Weather and Market Prices. **6.35** (approx.), Richard Strauss Concert, conducted by Franz Marszalek. Soloist: Bertha Ebner-Oswald (Soprano). Parademarsch der Königsjäger zu Pferde. Songs: (a) Morgen, (b) Ich trage meine Minne, (c) Traum durch die Dämmerung, (d) Serenade, (e) Schlechtes Wetter, (f) Cäcilie; Waltz from Der Rosenkavalier. **7.15,** Dance Suite, from Pianoforte Pieces by François Couperin (arranged for Small Orchestra by Richard Strauss). **8.0,** News Bulletin. **8.10,** Extracts from Abu Hassan, Comic Opera (Weber). **9.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **9.30,** Accordion Concert of Light Music. **11.0** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**3.10 p.m.,** Popular Band Concert. **3.55,** Theatre Notes. **4.5,** See **Prague. 5.5,** Talk: Creative Art. **5.15,** Talk for Workers. **5.25,** German Transmission: News, Sports Report, and Talk on Raphael. **6.0,** See **Prague. 6.25,** See **Moravská-Ostrava. 6.45,** See **Prague. 9.15,** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**11.0 a.m.,** Concert by the Small Station Orchestra, conducted by Leemans. **12.0** Noon, Le Journal Parlé. **12.10** p.m., Gramophone Concert of Light Music. **1.0,** Educational Programme. **4.0,** Orchestral Concert, conducted by Meulemans: Marche aux flambeaux (Meyerbeer); Selection from Lakmé (Delibes); Basque Rhapsody (Pierné); Bucolique (d'Agrèves); Two Symphonic Pieces (Bernard); Jeux d'enfants (Bizet); A Fête in Aranjuez (Demersemann); Waltz, Le Pont d'amour (Van Oost). **5.0,** Legal Talk. **5.15,** Music by the Small Station Orchestra: Suite bergamasque (Debussy); Selection from Dalibor (Smetana). **5.30,** Anecdotes about the Art of Dentistry. **5.45,** Mozart Pianoforte Recital by Oscar Delvigne: Fantasia in C Minor; Sonata in C. **6.15,** Talk. **6.30,** Le Journal Parlé. **7.0,** Concert by the Station Symphony Orchestra, conducted by Meulemans; Soloists, Mme. Parroux (Soprano) and Mlle. Antrique (Songs); Overture, La Princesse jaune (Saint-Saëns); Selection from Madame Butterfly (Puccini); Songs: (a) Prayer from Tosca (Puccini), (b) Aria from Griselidis (Massenet), (c) You are my Heart's Delight (Lehár); Hungarian Serenade (Wesly); Divertissement (Lalo). **7.45,** Talk on Morality. **8.0,** Concert (contd.): Orchestral Suite (Kalkman); Liebestraume (Liszt); Songs: (a) Aria from Samson and Delilah (Saint-Saëns), (b) Morgen (R. Strauss), (c) Canzonetta (Pergolesi); Suite from La Cigale (Massenet); Canzonetta for Clarinet (Pierné); Feuille d'album for Wind Instruments (Saint-Saëna); Selection from Tzeyl (Pierné); Waltz, Unter den linden (Strauss). **9.0,** Le Journal Parlé. **9.10,** Wireless Notes. **9.25,** Light Music on Gramophone Records. **10.0,** La Brabançonne.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**11.0 a.m.,** Gramophone Concert: Selection from L'Elisir d'amore (Donizetti); Overture, William Tell (Rossini). **12 Noon,** Le Journal Parlé. **12.10 p.m.,** Concert by the Small Orchestra, conducted by P. Leemans: March, Blonde Husarenbraut (Künneke); Suite, Scènes foraines (Mignan); Toccata for Pianoforte (Bazelaire); Selection from The Dance of the Dragonflies (Lehár); Garden of Love (Wood); Waltz, Dis-moi Darling (Reisfeld-Marbot); Tango, Ich suche Liebe (Bader); Foxtrot, Wie sag' ich's meinem Mann (Mackeben). **1.0,** Educational Programme. **4.0,** Dance Music, relayed from the St. Sauveur Palais de Danse. **5.0,** Saxophone Music on Gramophone Records: Rhapsody for Saxophone and Orchestra (Debussy); Schön Rosmarin (Kreisler); Golliwog's Cake Walk (Debussy). **5.15,** Talk: The Blackbird and the Lark. **5.30,** Quartet Concert: Pianoforte Quartet (Beethoven); Pianoforte Quartet, Op. 87 (Dvorak). **6.15,** Talk: The Röntgen Rays. **6.30,** Wireless Notes. **7.0,** Septet (Saint-Saëns) on Gramophone Records. **7.17,** Introductory Talk to the following Transmission. **7.20,** European Concert, relayed from **Warsaw. 9.0,** Le Journal Parlé. **9.10,** Dance Music, relayed from the Saint Sauveur Palais de Danse. **10.0** (approx.), Close Down.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**3.0 p.m.,** Concert by the Station Orchestra: Overture, Der Waffenschmied (Lortzing); Waltz, Pomona (Waldteufel); The Nutcracker Suite (Tchaikovsky); Intermezo and Barcarolle (Offenbach); Minuet (Boccherini); Selection from Zigeunerprimas (Kálmán); Polovtsian Dances from Prince Igor (Borodin); March from El Capitan (Sousa). In the interval at **4.0,** Radio Journal. **4.50,** Talk, Religion in Romania. **5.10,** Talks on Philosophy and Religion. **6.0,** Time Signal. **6.20,** Symphony Concert by the Philharmonic Orchestra, conducted by Perlea; Soloist, I. Filionesco (Pianoforte): The Pathetic Symphony (Tchaikovsky); The Lake Symphony (Otteseo); Prelude (Otteseo); Rhapsody in Blue for Pianoforte and Orchestra (Gershwin); L'Apprenti sorcier (Dukas). In the interval at **7.0,** Talk. **8.0,** News. **8.15,** Talk in German on Romanian Art.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW. Also relays on **840 metres from 5.30 to 11.0 p.m.—4.30 p.m.,** Choral Concert. **5.30,** Military Band Concert, conducted by R. Fricsay. **6.30,** Review of Foreign Politics. **6.45,** Humorous Talk. **7.15,** European Concert Relay from **Warsaw. 9.0,** Cigány Music from the Pannonia Hotel. **9.45,** Popular Music on Gramophone Records.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **KALUNDBORG, 260 kc/s, 1,153 metres;** 7.5 kW.—**2.0 p.m.,** Instrumental Concert: Soloist: Karen Hjorth (Songs): March, In Treue fest (Teike); Overture, Klods Hans (Brandsholt); Waltz, A Summer Evening (Waldteufel); Selection from Die Fledermaus (Joh. Strauss); Minuet (Bolzoni); Tambourin (Gossec); Valse lente (Dolli); Songs (Fini Henriques); Two Songs (Heise); Waltz from Zigeunerprimas (Kálmán); Polka, Pepita (Lumbye); Selection from The Bird Fancier (Zeller); Piece (Czibulka); Overture, A Waltz Dream (O. Strans). **4.0,** Reading for Children. **4.40,** Exchange and Market Prices. **4.50,** Talk: Masterpieces of Danish Literature—Heiberg's Comedy, A Soul after Death. **5.20,** German Lesson. **5.50,** Weather and News. **6.15,** Time Signal. **6.20,** Talk by Bertel Dahlgaard. **6.50,** Item by Per Knutzon. **7.0,** Town Hall Chimes. **7.1,** Programme for Lower Jutland Day, relayed from the Oddfellows' Hall. **9.0,** News Bulletin. **9.15,** Trio in E Flat (Brahms) for Pianoforte, Violin, and Bugle Horn, Op. 40 (Brahms). **9.45,** Dance Music from the Lorry Etablissement. **11.30** (approx.), Close Down.

CORK.—See **Athlone.**

CRACOW

950 kc/s, 315 metres; 1.5 kW.—**6.0 p.m.,** Talk: Poland's Past and Future. **6.30,** See **Warsaw. 7.0,** Talk in French. **7.15** till Close Down, See **Warsaw. 10.0** (approx.), Close Down.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11.0 a.m.,** Light Music on Gramophone Records. **11.30,** News Bulletin. **11.45,** Radio Concert. **5.0 to 6.0,** Programme in English by the I.B.C. C. Danvers-Walker, B. McNabb, and F. Lamping announcing. **5.0,** Concert for Southampton Listeners. Vocal Duets. That Silver-haired Daddy; In an Old World Garden; Zigeunerweisen (Sarasate); When I was a Boy from the Mountains; Now I'm in Love; Last Night I dreamed of you. **5.20,** Concert for Bournemouth Listeners.

Light Orchestral Music; Me and the Man in the Moon; Chinatown my Chinatown; The Woman in the Shoe; Russian Rhapsody; Sleepy Valley; Cheer up, good Times are coming. **5.40,** Concert for Weymouth Listeners. The March of the Grenadiers; You will remember Vienna; The Ranger's Song; Selection from Sunny, Song of the Drum; Ol' Man River. **6.0,** Radio Gazette. **6.20,** News. **6.30,** Variety Music on Gramophone Records. **7.10,** Agricultural Talk. **7.30,** Concert, relayed from **Le Havre.** **10.0 p.m.** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music. Looking on the Bright Side; Marta; Please don't mention it; Shadows on the Window; Just hummin' along; Long ago; The King was in the Counting House; Don't tell a Soul; When the Rest of the Crowd goes Home; What makes you so adorable?; By the Fireside; Moonlight on the River; Sing Brothers; Good-night little Girl, Good-night. **11.0,** Wagner Concert. Overture, Rienzi; Walter's Prize Song from The Mastersingers; Selection from Tannhäuser; Träume; Pilgrim's Chorus from Tannhäuser; Swan Chorus from Lohengrin; March from Tannhäuser. **11.30,** Vocal Concert. Chorus: Come to the Fair (Easthope Martin); Song: Garden of Happiness (Haydn Wood); Orchestra: Demande et Réponse (Coleridge-Taylor); Chorus: Ye Banks and Braes (Traditional); Orchestra: The Dancing Doll (Poldini); Song: Rose in the Bud (Forster); Chorus: The Bells of St. Mary's; Orchestra: Waltz, Très jolie (Waldteufel). **12.0 Midnight,** Club Concert for South Shields, Stockton, and West Hartlepool Listeners. Part I: Variety Music; Music Hall Favourites; Down Stream; The Minstrel Boy; Paradise Alley; The Doll's House; The Irish Washerwoman; Sailor's Hornpipe. **12.30 a.m. (Saturday),** Concert. Part II: Popular Songs; My Fate is in your Hands; Melody Divine; Darling Old Mother of mine; Orchestra: Happy Interludes; Mona Lisa; Mother's Smile; I wish I had died in my Cradle. **1.0,** Pianoforte Solos. Selection from The King of Jazz (Whiteman); Popular Melodies on a Piano (Ray); One Night alone with you (Jeffreys); Song: Lazy Louisiana Moon; Selection from Puttin' on the Ritz (Berlin); Song: Melancholy; Let Love take care of you (Van Phillyse). **1.30,** Vocal Trios; Bubbling over with Love; Painting the Clouds with Sunshine; A Beach in the Park; Waltz, My Florence; Laughing at the Rain; A Pair of Blue Eyes; I'll always be true; Mazurka, Lido Lady. **2.0,** Dance Music. On a Little Balcony in Spain; Belle of Barcelona; The One Man Band; Fiesta; How's your Uncle?; Carolina Moon; Pardon Madame; I'd like to find the Guy that wrote the Stein Song; Bathing in the Sunshine; Whistling in the Dark; Choo, Choo; You're twice as nice as that Girl in my Dreams; Sweet and Lovely; How about me?. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **CASSEL, 1,220 kc/s, 245.9 metres;** and **TRIER, 1,157 kc/s, 259.3 metres.**—**5.25 p.m.** Book Review. **5.50,** Talk: State Subsidies for the Repair of Dwellings and Premises. **6.15,** Time, Programme Announcements, Weather, and Exchange. **6.20,** A German Almanac. **6.30,** Musical Handwriting—Dialogue between Dr. Reinhold Merten and the Inventor, H. Pfenninger. **7.0,** The German Rising in Song—Sepp Summer sings his own Compositions: Wach auf, du deutsches Land; Denkt daran; Ehelied; Das Lied vom Helden; Der deutsche Tod; Leb wohl, mein Kamerad; Deutscher, bleib deutsch; Feierliches Gelübde; Wir gehn im Schritte. **7.30 to 9.0,** See **Stuttgart.** **9.0,** Time, News, Weather, and Sports Notes. **9.45,** Concert by the Station Orchestra, conducted by Reinhold Merten: Love Waltz from the Ballet Suite, Op. 130 (Max Reger); Elfenreigen (Klose); Romantique Ballet Suite, Op. 46a (the Glass-Blower's Suite (Aug. Reuss); Three German Marches, Op. 101 (H. Kaun); Classical Waltzes. **11.0** (approx.). Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**6.0 p.m.,** Talk for Workers. **6.25,** Weather. **6.30,** Talk: Some Pictures of the Ruhr Occupation. **7.0,** Heinrich Kaminski Concert by the Radio Choir and Orchestra, conducted by the Composer; Soloists: Annemarie Sottmann (Songs), Anton Grünsfelder (Viola), and Gerhard Gregor (Organ): Choral Sonata for Organ; Two Extracts from the Geistlichen Chören; Magnificat for Soprano, Viola, Women's Choir, and Orchestra; Two Arias from Geistlichen Chören; Concerto grosso. **8.15,** News Bulletin. **8.25,** Magie im Hinterhaus—Radio Play (Bruno Manuel and Hans Reimann). **9.10,** News Bulletin. **9.20,** Topical Talk. **9.30,** Concert of Light Music, conducted by Fritz Gartz.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 453.2 metres.**—**12.5 p.m.,** Variety Music on Gramophone Records. In an interval at **12.20,** Announcements. **1.30,** Concert arranged by the Post Office, with Gramophone Records. **2.0,** Agricultural Prices and Exchange. **2.30,** Talk for Women. **3.0,** Charlotte Wüstendörfer reads from her own Works. **3.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken. Overture, The Mikado (Sullivan); Le Pas des fleurs from Naila (Delibes); Selection from Robert le diable (Meyerbeer); Suite Dance Scenes (Richter); Waltz, An rauschenden Wassern (Naef); Selection from Das Pensionat (Suppé); Overture, Consalvo (Azzoni). **4.45** (from **Danzig**), Talk on Forestry. **5.15,** Agricultural Prices. **5.30,** Organ Recital by Josef Sistermanns: Fantasia, Op. 5b (Schröder); Passacaglia in E Minor, Op. 8 (Weber); Sonata, Op. 89 (Rüdinger). **6.0,** Talk: National Socialism and the East Mark. **6.30** (from **Danzig**), French Lesson. **6.55,** Weather and News. **7.0,** Die Löwin und der General (The Lioness and the General)—Radio Play (Eduard Reinacher). **8.0,** Concert by the Opera House Orchestra, conducted by Ludwig Leschetizky. Overture, The Barber of Bagdad (Cornelius); Prelude, Vasantasena (Herrmann); Symphonic Poem, The Water Sprite (Dvorak); Four Tone Poems from the Böcklin Suite (Reger): (a) Der geigande Eremit, (b) Im Spiel der Wellen, (c) Die Toteninsel, (d) Bacchanale. **9.20,** Weather, News, and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—**11.40 a.m. to 3.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).—**11.40,** Time signal. **11.41,** Light Music on Gramophone Records. **12.10 p.m.,** Concert by the Wireless Orchestra, conducted by Nico Treep, with Gramophone Interludes. In the interval at **1.40,** Talk on Sweden. **2.40,** Popular Music on Gramophone Records. **3.40 to 7.40,** Programme of the Workers' Radio Society (V.A.R.A.). **3.40,** Concert by the Little V.A.R.A. Orchestra, conducted by P. Duchant. Overture, The Nuremberg Doll (Adam); Suite, Kinderlieder (Blech); Funeral March of a Marionette (Gounod); Betendes Kind (Schumann); Kinderszenen (Schumann); Im Spielwarenladen (Jessel); Knabentraum (Klark); Kinderliedermarsch (Lindemann). **4.30,** Programme for Children. **5.10,** Concert (contd.): The Diplomat (Sousa); Japanese Puppet Play (Yoshitomo); Serenade (Rachmaninov); Selection from The Belle of New York (Kerker); Selection from Gri Gri (Lincke). **5.40,** Light Music on Gramophone Records. **5.50,** Organ Solos by Johan Jong. In the interval at **6.20,** Talk: Soviet Russia. **6.55,** Extracts from Carmen—Opera (Bizet) on Gramophone Records. **7.40 to 10.40,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). **7.40,** Religious Address. **8.10,** Pianoforte and Oboe Recital by C. Stevens and M. J. Stotijn. In the Interval at **8.40,** Talk. **9.40,** News Bulletin. **9.55,** Religious Address. **10.25,** Gramophone Records. **10.40** till Close Down, V.A.R.A. Programme. **10.40,** Variety Concert by J. Carlquist (Banjo and Guitar), E. Charmion (Songs), G. Steyn (Organ), and J. Vogel (Celest and Pianoforte). **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW. **11.40 a.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). **11.40** Police Announcements. **11.55,** Orchestral Concert: Hornstein March (Fucik); Overture, Nell Gwynn (German); Waltz, Les Saxones (Waldteufel); Selection from La Wally (Catalani); Dance of the Merry Mascots (Ketelbey); Mutmelodies Lüftchen (Jensen); Gramophone Records: Overture, Norma (Bellini); Selection from The Three Bears (Coates); Erinnerung an Baden (Komzak). **1.20,** Pianoforte and Violin Recital by Mme. A. Verbeek-Haak and M. G. Robert: Sonata No. 15 in B Flat (Mozart); Gramophone Records: Sonata, Op. 79, in G Minor (Sjögren). **2.10,** Sacred Song Recital. In the interval, Talk. **3.30,** Popular Music on Gramophone Records. **3.40,** Topical Talk. **4.10,** Recitations. In the interval at **4.40,** Gramophone Records of Variety Music. **5.25,** Popular Music on Gramophone Records. In the interval at **5.40,** Talk on Easter. **6.50,** Talk on Architecture. **7.10,** Police Announcements. **7.25,** European Concert, relayed from **Warsaw.** **9.0,** News. **9.5,** Variety Music on Gramophone Records. **9.10,** Orchestral Concert of Light Music. **10.40,** News. **10.45,** Light Music on Gramophone Records. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**7.15 p.m.,** Esperanto Lesson. **7.20,** Radio Concert. **8.0,** Weather, Racing Results and News. **8.15,** Dance Music from the Palais de la Méditerranée, Nice. **11.0 to 12 Midnight,** Programme in English by the I.B.C.: H. K. Hitchcock announcing. **12 Midnight** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**6.0 p.m.,** Talk: Fenimore Cooper as the Friend and Defender of Poland. **6.15,** Announcements and Gramophone Records. **6.25,** Sports Notes. **6.30,** See **Warsaw.** **10.0,** Answers to Correspondence in French.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 10 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—**6.5 p.m.,** Concert by the Helsinki Municipal Orchestra conducted by Georg Schnevoigt, relayed from the University. Soloist: Hjalmar Byrding (Songs). First Symphony (Beethoven); Aria from Prince Igor (Borodin); Aria from The Czar's Bride (Rimsky-Korsakov); Danse macabre for Choir and Orchestra (Pingoud); Cantata for Choir and Orchestra (Carlson). **8.0,** News in Swedish. **8.15,** Part Relay of the European Concert from **Warsaw.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert, conducted by Eysoldt. Soloist: Erich Rauch (Baritone). In the interval at **1.0 p.m.,** News. **1.30,** Sponsored Programme with Gramophone Records. **2.30,** Exchange and Time Signal. **3.20,** Programme for Young People. **4.0,** Orchestral Concert. **5.15,** Talk: Nameless Inventors. **5.45,** Weather, Time, Exchange and Sports Notes. **5.50,** Talk: The Art of Speaking Naturally. **6.10,** Legal Talk. **6.30,** Talk: Handicrafts in West Germany. Handicrafts in Anecdotes and Popular Humour. **6.55,** First General News. **7.0,** Public Variety Programme in Aid of the Station Winter Relief Fund, relayed from the Tonhalle, Duisburg. The Small Station Orchestra, The Four from the Opera House, Duisburg, and Soloists. **9.30,** News and Sports Notes. **9.45,** Programme to be announced. **11.0** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **DRESDEN, 941 kc/s, 319 metres.**—**3.30 p.m.,** Orchestral Concert, conducted by Gustav Mannebeck, relayed from **Dessau.** Norwegian Fantasia, In the Mountains (Selmer); Dramatic Overture (Ries); Kleine Lustspielsuite (Wunsch); Waltz, Lustige Lieder (Vollstedt). **4.30,** Book Review. **4.50,** Economic Notes, Weather and Time. **5.0,** Talk by Dr. Otto v. Wesendonk: Richard Wagner and the Wesendonk Family. **5.25,** English Lesson. **5.50,** Talk: Spring Navigation on the Elbe. **6.0,** Talk: The Significance and Achievements of the University Self-Help Organisation. **6.30,** Reading (Jeremias Gotthelf). **7.0,** The Gipsy Princess Operetta in Three Acts (Kálmán), relayed from the New Theatre. In the intervals at **8.0** and **9.5** (approx.), News. **10.0** (approx.), Gramophone Concert. Intermezzo, Puppenspiele (Lederer); Waltz, Traurige Augen (Romberg); Erinnerung an Potsdam (Noack); Die lustigen Leut' (Kronegger); Fischermarsch (Fischer); Lampenputzer Galopp (Hertel); Stiefelputzer-Marsch (Ehrich); In Treue allezeit (Pöhland, Jnr.). **11.0** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW. **6.0 p.m.,** French Lesson. **6.30,** Talk on Geology. **7.0,** Concert of Chamber Music. **8.0,** Concert, relayed from the Café Zvezda. **9.0,** Time, News and Light Music on Gramophone Records.

LWOW

788 kc/s, 381 metres; 16 kW.—**6.15 p.m.,** Miscellaneous Items. **6.30,** See **Warsaw.** **10.0** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**6.30 p.m.,** Radio Gazette for Lyons and the South East. **7.30,** Instrumental Concert: Trio in E Flat, Op. 70, No. 2 (Beethoven); Violin Solos: Kreisleriana (Schumann); Pianoforte Solos: (a) Sicilienne (Paradis), (b) Gavotte and Musette (Bach), (c) Habanera (Ravel), (d) Caprice (Hindemith); Trio (Ramau); Jeux (Ibert); La cage de cristal (Ibert); Kaddisch (Ravel); Trio (Ropartz). **After** the Concert, News Bulletin.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**10.30 p.m.,** Concert of Light Music. **10.45,** Radio Chronicle. **11.0,** Concert (contd.). **11.35,** Answers to Correspondence. **11.40,** Talk. **11.45,** Light Music. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**7.0 p.m.,** Chimes, Exchange Quotations, Programme of Musical Novelties and Variety Items by Ramon Gomez de la Serna. **8.15,** News Bulletin and Political Review. **8.30 to 9.30,** Interval. **9.30,** Chimes, Time Signal and Political Review. **9.45** (approx.), Concert of Spanish Music by the Station Symphony Orchestra. **11.45,** News Bulletin and Programme Announcements for Listeners Abroad. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**3.10 p.m.,** See **Brno.** **3.55,** Talk. **4.5,** See **Prague.** **5.5,** Technical Talk. **5.15,** See **Prague.** **6.25,** Chromatic Accordion Solos. **6.45,** Introductory Talk to the following Transmission. **7.0,** Symphony Concert by the Station Orchestra and the National Theatre Orchestra, relayed from the National Theatre: Conductor: Jaroslav Vogl; Faust Overture (Wagner); Concerto in B Minor for 'Cello and Orchestra (Dvorak); Symphony No. IV in E Minor (Brahms). **9.0,** See **Prague.** **9.15** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres,** and **Nürnberg, 1,256 kc/s, 239 metres.**—**11.0 a.m.,** Orchestral Concert, conducted by Erich Kloss; Soloist: Hugo Reker (Violin): Overture, Der Waffenschmied (Lortzing); Scottish Dances (Beethoven); Selection from Il Trovatore (Verdi); Canzonetta, from the Violin Concerto (Tchaikovsky); Norwegian Peasant Dances (Grieg); Adagio cantabile, from the Septet (Beethoven); Ständchen (Schubert); March, Gruss in die Ferne (Döring). **12.15 p.m.,** Gramophone Concert of Classical Music. **1.0,** Time, Weather, Announcements, News, and Exchange. **1.30,** Programme arranged by the Post Office, with Gramophone Records. **2.0,** Illustrated Talk for Women: Wilhelmine von Brandenburg. **2.50,** Weather and Agricultural Notes. **3.0** (from Nürnberg), Folk Songs to the Lute. **3.15,** Pianoforte Sonata in C, Op. 53—the Waldstein Sonata (Beethoven), by Helmut Mauler. **3.35,** Talk: Physical Training in Girls' Schools. **4.0,** Orchestral Concert. **5.5,** Talk: The Penny Piece. **5.35** (from **Nürnberg**), Talk: German Colonies in Foreign Cities. **5.55,** Time, Weather, and Agricultural Notes. **6.5,** Talk on Pickpockets. **6.25,** Concert by the Munich Tramways' Musical and Dramatic Society. **7.40,** Talk: Some Dangers of Mountaineering. **8.0,** Symphony Concert, conducted by Hans Winter; Soloist: Josef Pembaur (Pianoforte): Partita for String Orchestra (Bach); Concerto No. 5 in E flat for Pianoforte and Orchestra (Beethoven); Symphony in D (Mozart). **9.20,** Time, Weather, News, and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**4.15 p.m.,** Sponsored Concert on Gramophone Records. **5.0,** French Lesson. **5.30,** Concert of Popular Music. **6.0,** Announcements, Weather, and News. **6.30,** English Lesson. **7.0,** Time Signal. **7.2,** Symphony Concert, conducted by Odd Grüner Hegge, relayed from the Logen Hall: Overture, Seraglio (Mozart); Symphony in C, No. 1 (Beethoven); Les Préludes (Liszt); Variations and Fugue on a Theme by Mozart (Reger). **8.40,** Weather and News. **9.0,** Topical Talk. **9.15,** Recitations. **9.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

568 kc/s, 537.6 metres; 3 kW.—**7.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Talk, Report of the Royal Geographical Society and Giornale Radio. **7.20,** Light Music on Gramophone Records. **7.35** (in an interval), Time Signal and Announcements. **7.45,** Mary Magdalene—Opera (Pedrollo). In the intervals: Talk and Announcements. **9.55,** News Bulletin.

PARIS

EIFFEL TOWER, (FLE), 207.5 kc/s, 1,445 metres; 13 kW. Time Signals (o

APRIL 7th **FRIDAY** *continued*

2,650 metres) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.**, Talk on the Theatre. **6.0**, Le Journal Parlé. **7.20**, Weather Forecast. **7.30**, Literary and Musical Programme for Young People. **8.15**, Symphony Concert, conducted by E. Flament. Soloists: René Bas (Violin) and M. Marchesini ('Cello). Serenade (Malats); Alborada Gallega (Veiga); Jardin Sevillano (Millan); Violin Solo: Melody from Miss Decima (Andran); 'Cello Solo: Langueur d'amour (Flament); Overture, La Dame Blanche (Boieldieu). **9.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.0, p.m.**, Sponsored Talk. **6.10**, Light Music on Gramophone Records. **7.0**, Talk on Music. **7.15**, Interval. **7.30**, Concert by the Station Symphony Orchestra: Overture, The Merry Wives of Windsor (Nicolai); Serenade for Flute, Oboe, Horn and Strings (Lacombe); Three Miniatures (Cui); Soirs (Schmitt); Ballet Music from Hamlet (Thomas); Selection from Si j'étais roi (Adam); Le Papillon, for 'Cello, Strings and Pianoforte (Fauré); Gigue and Finale from Henry VIII (Saint-Saëns); Jota Navarra (Sarasate). **9.30**, News.

PARIS

RADIO PARIS (CFR), 174 kc/s, 1,725 metres; 75 kW.—**5.45 a.m.**, Physical Culture. **6.30**, Weather and Physical Culture (contd.). **6.45**, Gramophone Music: Funny Face (Gershwin); Robots (Mayerl); Teddy Bear's Picnic (Bratton). **7.0**, Press Review and Weather. **11.0**, Talk for Jews. **11.30**, Gramophone Concert: Sonatina (Leclair); Eine kleine Nachtmusik (Mozart); Overture, Coriolanus (Beethoven); Trio (Mendelssohn); Hungarian Rhapsody (Liszt); Lanterne magique (Godard); Selection from Pélleas et Mélisande (Fauré); Ballet Music from La Korrigane (Widor). In an interval at **12.30 p.m.**, Exchange. **1.0**, Exchange and News. **2.45**, Exchange and Market Prices. **3.30**, Elementary English Lesson. **5.10**, Talk on Gardening. **5.30**, Light Music on Gramophone Records. **5.50**, Talk on Insurance. **6.0**, Talk: General Joffre. **6.20**, Gramophone Music: Morning, Noon and Night (Suppé); Roses of Picardy (Haydn Wood); Bulgarian Suite (Wladigerov); Valse des fleurs (Tchaikovsky). **6.45**, Commercial Prices and News. **7.0**, Readings. **7.30**, News and Weather. **7.40**, Gastronomic Review. **7.45**, Concert of Chamber Music: Trio for Pianoforte, Clarinet and 'Cello (d'Indy); Villanelle for Horn and Pianoforte (Dukas); Pianoforte Solos: (a) Second Valse caprice (Fauré); Prelude and Nocturne for the Left Hand only (Scriabin); Fourth Etude (Stravinsky); Septet for Strings, Clarinet, Bassoon and Horn (Beethoven). In an interval at **8.15**, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK on 48.86 metres** and **25.27 metres.**—**9.0 p.m.**, Work-a-day Thoughts. **9.5**, Business News. **9.15**, S.A.I. Musicale (Carnegie Tech Chapter). **9.30**, Weather Report. **9.32**, Market Reports. **9.45**, Johnny Muskrat. **9.50**, David Lawrence Dispatch. **9.58**, Programme Announcements. **10.0**, Muskingum College Music Clubs. **10.15**, Dick Daring. **10.30**, The Singing Lady, from **New York**. **10.45**, Little Orphan Annie. **11.0**, Our Daily Food by George Rector and Judge Gordon, from **New York**. **11.15**, Time Signal. **11.16**, Weather Report. **11.17**, Teaberry Sport Review. **11.22**, Press News Reeler. **11.29**, Temperature Report. **11.30**, KDKA Orchestra. **11.45**, Today's News, by Lowell Thomas, relayed from **New York**. **12 Midnight**, Pepsodent Amos 'n' Andy, from **New York**. **12.15 a.m. (Saturday)**, Adventures of Aunt Lulu, KDKA Players. **12.30 to 3.30, New York** Relay. **12.30**, Five Star Theatre, Charlie Chan. **1.0**, Nestle's Programme. **1.30**, Time Signal and Adventures in Health. **1.45**, Howard Thurston, the Magician. **2.0**, The First Nighter. **2.30**, Armour Programme. **3.0**, Dorothy Fields and Jimmy McHugh. **3.15**, Vic and Sade. **3.30**, Bridge School of the Air, by E. Hall Downes. **3.45**, Prof. Jack McLallen, Sara and Sassafras, from **New York**. **4.0**, Time Signal. **4.1**, Teaberry Sport Review. **4.11**, Temperature Report. **4.12**, Weather Report. **4.13**, KDKA Artist Bulletin. **4.15**, Press Last Minute News Flashes. **4.20**, Smith Ballew and his Orchestra. **4.58**, KDKA Artist Bulletin. **5.0**, Cotton Club Orchestra, from **New York**. **5.30**, Time Signal and Goodnight.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**3.10 p.m.**, See **Brno**. **3.55**, Talk: Geological Research. **4.5**, Concert by the Ondricek Quartet: String Quartet No. 2, Op. 8 (Sin); String Quartet in E, Op. 125, No. 2 (Schubert). **5.5**, Market Prices. **5.15**, Talk for Workers. **5.25**, News in German. **5.30**, German Transmission: Two Medical Talks. **6.0**, Chimes. **6.1**, News Bulletin. **6.10**, Talk on Finance. **6.25**, See **Moravská-Ostrava**. **6.45**, Reading. **7.0**, Introductory Talk and European Concert relayed from **Warsaw**. In the interval at **8.0**, Time Signal. **9.0**, Time Signal. **9.1**, News. **9.15** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.: **Lausanne, 422 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—**5.0 p.m.** (from **Geneva**). Reading. **5.15** (from **Geneva**). Interview with Young People. **5.30** (from **Lausanne**). Talk. **6.0** (from **Geneva**), Weather Forecast, News Bulletin, and Announcements. **6.30** (from **Geneva**). Talk on Sound Films. **7.0** (from **Geneva**). Reading by Henri de Ziegler (Author). **7.15** (from **Geneva**), An Unpublished Sketch (Henri Tanner). **7.30** (from **Geneva**), Cabaret Programme by the Broadcasting Serenaders and Mme. Marguerite de Reding. **8.30** (from **Geneva**), Military Band Concert. **9.0**, News Bulletin and Weather Forecast. **9.15** (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**6.5 p.m.**, Symphony Concert, conducted by J. Medins: Soloist: Vitza Vronsky: First Symphony (Atterberg); Concerto for Pianoforte, Op. 30 (Rimsky-Korsakov); Impressioni del Vero, Part III (Malipiero). In the intervals at **7.0**, News, and at **8.0**, Weather and News. **8.30**, Dance Music. **9.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,810 kc/s, 25.4 metres.**—**12 Noon**, Time and Announcements. **12.2 to 1.15 p.m.**, Orchestral Concert. In the interval at **12.30 to 12.45**, Weather and Exchange. **3.0**, Concert of Chamber Music from the Royal Academy of Saint-Cecilia. **6.0 (Naples)**, Shipping and Sports Notes. **6.20**, Giornale Radio and Gramophone Records of Light Music. **7.0**, Time and Announcements. **7.5**, Report of the International Institute of Agriculture (in Italian, French, English, German and Spanish). **7.30**, Sports Notes and Tourist Report. **7.45**, Variety Concert. Soloists: Maria Senes and Anita Ribecova (Soprano), G. Castello (Baritone), and F. Belli (Bass). Quintet in E flat for Pianoforte, two Violins, Viola and 'Cello (Schumann); Duets for two Sopranos: (a) Song (Mendelssohn), (b) Aria from Figaro (Mozart), (c) Ber valli, per boschi (Blangini), (d) Aria from Lakmé (Delibes); Spanish Rhapsody for Pianoforte and Orchestra (Liszt-Busoni). **8.30**, Caroline—Comedy in One Act (Ferenc Herzeg). **9.0** (approx.), Concert (contd.): Aria for Soprano from the Second Act of La Vestale (Spontini); Baritone Solo and Duet for Bass and Baritone from the Second Act of I Puritani (Bellini); Overture, Linda di Chamounix (Donizetti). News after the Programme.

SALZBERG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres**, and by **W2XAD** on **19.56 metres.**—**7.30 p.m. to 12 Midnight, New York** Relay. **7.30**, Muted Strings. **7.45**, Three Shades of Blue. **8.0**, Sonata Recital. **8.15**, Famous Loves—Dramatic Programme. **12 Midnight**, Johnny Johnson's Orchestra. **12.15 a.m. (Saturday)**, Stock Reports. **12.30**, Gold Medal Band. **12.35**, Drifting and Dreaming, from **New York**. **12.45**, The Goldbergs, from **New York**. **1.0**, Cities Service Concert. **1.30**, WGY Farm Forum. **2.0**, Best Foods, from **New York**. **2.30**, Pond's Programme, from **New York**, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres.**—**11.28 a.m.**, Time Signal from Neuchâtel Observatory. **11.30**, Weather and News. **11.40** (from **Berne**), Concert of Variety Music by the Kursaal Orchestra, conducted by Urbano Calligari. **12.35 p.m.**, Weather and Exchange. **2.30** (from **Berne**), Concert of Chamber Music. **3.0** (from **Berne**), Famous Singers on Gramophone Records. **3.30** (from **Berne**), Programme for Children. **4.0** (from **Berne**), Light Music on Gramophone Records. **4.30**, Weather. **4.35 to 5.30**, Interval. **5.30** (from **Berne**), Talk: The Entry of the Polish Legion into Switzerland on April 7th, 1833. **6.0**, Time, Weather, Market Prices, Tourist Talk, and Sports Notes. **6.15** (from **Berne**), Folk Music on Gramophone Records. **6.30** (from **Berne**), Weisch no?—Dialogue in Dialect. **7.0** (approx.) (from **Berne**), Zither Duets by Heinrich and Mizzi Wolf. **7.15** (from **Berne**), A Microphone Visit. **7.30**, Orchestral Concert, relayed from **Geneva, 395 kc/s (760 metres).** **8.30**, Weather and News. **8.40** (from **Berne**), Concert by the Sanndig Male Voice Choir, conducted by Ernst Tanner. **9.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Horby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**4.5 p.m.**, Translation of a Student's English Exercise, relayed from **Malmo, 1,301 kc/s, 231 metres.** **4.15**, Talk for Boy Scouts. **4.35**, Songs to the Lute by Belle Nordström. **4.50**, Popular Music on Gramophone Records. **5.45**, Talk. **6.15**, Weather and News. **6.30**, Talk. **7.0**, Three Fantasias, Op. 11, for Pianoforte (Stenhammar), by Ingemar Liljefors. **7.15**, Det har ingenting hänt—Radio Play (Ove Ekelund). **8.0**, Soloist Programme and Reading. **8.45**, Weather and News. **9.0**, Orchestral Concert: Suite, Bilder aus dem Osten (Schumann); Five Finnish Pictures (Raasted); Tre färdeminnen (Lindberg); Norwegian Rhapsody No. 1 (Halvorsen). **10.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**10.30 a.m.**, Modern Music on Gramophone Records. **11.45**, News. **12 Noon**, Time and Exchange. **12.5 p.m.**, Variety Music on Gramophone Records. **1.0 to 3.45**, Interval. **3.45**, Talk in French on Modern Poetry. **4.0**, Orchestral Concert of Jazz Music. **5.0**, Trio Concert relayed from **Lille, 1,130 kc/s, 265.4 metres.** **6.0**, Topical Talk in German. **6.15**, Popular Music on Gramophone Records. **6.30**, Time and News. **6.45**, Orchestral Concert, conducted by Roskam: Soloist: Roskam ('Cello); March, Kansas City (Benoit); Waltz (Fucik); 'Cello Solos: (a) Mélopée (Duchêne), (b) Tyrolienne (Duchêne); Overture, Casanova (Lincke); Selection from Die Fledermaus (Joh. Strauss); March (Rosey). **7.30**, Lottery Results. **7.45**, Illustrated Talk by Mme. Dussane: Laughter down the Ages, relayed from the Grand Theatre, Besançon. **9.0** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW; and **Freiburg, 527 kc/s, 570 metres.**—**12.30 p.m.**, Concert from **Langenberg**. **1.0**, Concert arranged by the Post Office. **1.30**, Advanced English Lesson. **3.30**, Song Recital by Karl Jantz (Tenor) and Karl Jentsch (Baritone); Serenade from Don Pasquale (Donizetti); Credo from Othello (Verdi); Duet from The Force of Destiny (Verdi); Aria, Lakmé ton doux regard se voile from Lakmé (Delibes); Flower Aria from Carmen (Bizet); Duet from The Pearl Fishers (Bizet). **4.0** (from **Karlsruhe**), Concert by the Academy of Music: Allegro and Andante cantabile from the Violin Concerto in D (Mozart); Recitative and Aria from Fidelio (Beethoven); Scene and Aria from Der Freischütz (Weber); Zigeunerlieder, for Four Voices and Pianoforte (Brahms); Allegro from the Pianoforte Concerto in E Flat (Beethoven). **5.0**, Time, Weather and Agricultural Notes. **5.10**, Talk: Proposals for an Easter Excursion. **5.35** (from **Freiburg**), Talk on Blindness. **6.0**, Time, News and Popular Music on Gramophone Records. **6.30**, April: Programme of Songs and Recitations. **7.30**, Concert by the Philharmonic Orchestra. Conductor: Ferdinand Drost. Soloists: Willy Kleeman (Violin) and Max Zimolong (French Horn). Overture, Euryanthe (Weber); Concerto for French Horn and Orchestra (R. Strauss); Concerto for Violin and Orchestra (Strässer); The Unfinished Symphony (Schubert). **8.20**, Adolf Hitler—A Radio Sequence (arranged by Erich Lorenz), Musical arrangement by Ferdinand Drost. **9.0**, Time, News, Weather, Programme Announcements and Sports Notes. **9.30**, Old Dance Music by the Radio Orchestra, conducted by Gustav Görlich. **11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**6.30 p.m.**, Orchestral Music. **6.45**, Operetta Music. **7.0**, Accordion Music. **7.15**, Extracts from Sound Films. **7.30**, Saint-Saëns Concert: Marche héroique; Danse macabre; Air from Samson and Delilah; Le Cygne; Selection from La Princesse jaune; Le Rouet d'Omphale. **8.0**, Chansonnettes, followed by Military Music. **9.30**, Music by an Argentine Orchestra. **9.45**, Arias from Opera: (a) Si j'étais roi (Adam), (b) Don Quixote (Masseuet), (c) L'Attaque du Moulin (Bruneau). **9.0**, Operetta Music: Selection from Paganini (Lehár), (b) Elle est à vous (Yvain), (c) The Land of Smiles (Léhar). **9.15**, North-African News. **9.30**, Concert for Listeners in Morocco. **10.30 to 11.0**, Programme in English by the I.B.C.: W. Brown Constable announcing. **10.30**, If I could be one Hour with you; Swingin' the Blues; Shine; When day is done; Wah-de-Dah; It's the darndest thing; Sweet Rythm; Sweetheart I'm dreaming of you. **10.57**, I.B.C. Goodnight Melody. **11.0**, News, Weather, and Announcements. **11.5**, Music by a Viennese Orchestra. **11.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**6.50 p.m.**, Concert by the Caffè Dante Orchestra, followed by Programme from **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**3.0 p.m.**, See **Rome**. **5.35**, Giornale Radio, Agricultural Report and Dopolavoro Announcements. **6.0**, Time and Gramophone Records. **6.20**, Giornale Radio. **6.45**, Report of the Royal Geographical Society and Gramophone Records. **7.0**, Time, Announcements, Weather, and Gramophone Records. **7.45**, Notes on Art. **8.0**, Symphony Concert, conducted by Daniele Amfitheatrov: Soloists: Reny Principe (Violin) and Benedetto Mazzacurati ('Cello); Talk in the interval. **10.0**, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—**10.0 to 10.15 a.m.**, Religious Information in German. **7.0 to 7.15 p.m.**, Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**3.40**, Talk: The International Philatelic Exhibition in Vienna, 1933. **3.55**, Egon Kornauth Concert by the Weissgärber Quartet. Soloist: Erika Rokyta (Soprano). The Composer at the Pianoforte. Four Songs to Poems by Clemens Brentano: (a) Abendständchen, (b) Der Spinnerin Lied, (c) Wiegenlied, (c) Säusle, liebe Myrthe; Clarinet Quintet in F Sharp Minor, Op. 33; Five Songs to Poems by Eichendorff: (a) Lockung, (b) Treue, (c) Waldeinsamkeit, (d) Nachklänge, (e) Herbst. **4.40**, Gramophone Concert: La Campanella (Liszt); Santa Lucia (Liszt); Caprice viennois (Kreisler); Meditation (Massenet); Song, Les filles de Cadiz (Delibes); Der Lenz (Hildach); Concert Polka (Sauer); Mazurka (Zarzycki). **5.15**, Tourist Report. **5.30**, Talk: Easter Walking Tours. **5.45**, Sports Report. **5.55**, Talk: The Riddle of Dreams. **6.20**, A Pleasant Interlude. **6.35**, Time, Weather and Programme Announcements. **6.45**, Talk, with Gramophone Illustrations: A Visit to the Cave-Dwellers of the Canary Islands. **7.15**, European Concert from **Warsaw**. **9.0**, News, Weather and Announcements. **9.15**, Roads Report. **9.20**, Concert by Louis Seidel and his Band. Overture, The Hermit's Bell (Maillart); Waltz, Pas des fleurs (Waldteufel); Second Slav Rhapsody (Friedemann); Serenade (Seidel); Strauss-Millöcker-Suppé Potpourri (Ziehrer); Diner-Walzer (Grünfeld); Overture, Der Waldmeister (Joh. Strauss).

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**10.57 a.m.**, Time Signal and Fanfare from St. Mary's Church, Cracow. **11.5**, Programme Announcements. **11.10**, Light Music on Gramophone Records. **12.20**, Weather Forecast. **12.25 to 2.10**, Interval. **2.10**, Announcements. **2.15**, Economic Notes. **2.25**, Aviation Report and Anti-Gas Drill. **2.30**, Talk: Maritime and Colonial Affairs. **2.35**, Review of Periodicals. **2.50**, Light Music on Gramophone Records. **3.20**, Talk on Polish Literature. **3.40**, Talk: Bread the Staff of Life. **4.0**, Concert by a Wind Instrument Orchestra, conducted by L. Cymerman. In the interval: Announcements. **4.55**, Programme Announcements. **5.0**, Biological Talk. **5.20**, Talk on Current Events. **5.25**, Light Music on Gramophone Records. **5.45**, Talk: Joie de vivre. **6.0**, Miscellaneous Items. **6.20**, Talk on Linen and Wool. **6.30**, Literary Talk. **6.45**, Radio Journal. **7.0**, Introductory Talk in French to the following Transmission. **7.15**, European Concert by the Warsaw Philharmonic Orchestra, conducted by G. Fitelberg, relayed from the Philharmonic: Soloists: F. Bandrowska-Turska (Soprano) and Charles Szymanowsky (Pianoforte): Overture, Flys (Moniuszko); Symphony No. 4 (Szymanovsky), the Composer at the Pianoforte; Soprano Solos: Three Songs (Szymanovsky): (a) The Nightingale, (b) The Solitary Moon, (c) Dance; Act I of the Ballet, Undine (Moravsky); Soprano Solos: (a) Song from Lilies (Szopsky), (b) My little Nightingale (Zelensky), (c) Two Songs (Moniuszko), (d) Lithuanian Song (Chopin), (e) Le Désir (Chopin). **9.0**, Concerto for Soprano and Orchestra (Kassern) by Mme. Bandrowska-Turska and the Philharmonic Orchestra, relayed from the Philharmonic. **9.40**, Sports Notes. **9.45**, Radio Journal. **9.55**, Aviation Weather Report and Police Notes.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—**6.30 p.m.**, Announcements. **6.50**, Introductory Talk to the following Relay. **7.0**, European Concert, relayed from **Warsaw**. **9.0**, News and Weather. **9.10**, Jazz Music by the Sever Band, relayed from the Grill Room. **10.0** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

SATURDAY

APRIL THE EIGHTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Choral concert from the Queen's Hall.
LONDON REGIONAL	"The Piper," a lyric drama by H. Ferrers. "The Pyramid," a play by N. Edwards, and "A Visitor from Down Under," by L. P. Hartley.
MIDLAND REGIONAL	From the Musical comedies, orchestral programme.
NORTH REGIONAL	Vaudeville programme.
WEST REGIONAL	Orchestral concert from the National Museum of Wales.
	Orchestral concert from the Ulster Hall.

ABROAD

ATHLONE	8 p.m. Dublin Philharmonic Society.
BERO-MUNSTER	6.45 p.m. Symphony concert, conducted by Felix Weingartner.
HILVERSUM	7.40 p.m. Bach's St. Matthew Passion, from Amsterdam.
KONIGSWUS-TERHAUSEN	8.15 p.m. Chamber music, conducted by Lindner.
LANGENBERG	7.20 p.m. The Münster Municipal Orchestra, conducted by A. Wolf.
OSLO	9.15 p.m. Orchestral concert of operetta music.
PALERMO	7.45 p.m. Operetta: "Katja the Dancer" (Kalman).
PITTSBURGH	1.15 a.m. (Sunday). The Boston Symphony Orchestra, from New York.
STUTTGART	7.15 p.m. Operetta: "Cagliostro in Wien" (J. Strauss).
TURIN	7.45 p.m. Operetta: "The Duchess of Hollywood" (Ranzato and Lombardo).
WARSAW	9.5 p.m. Chopin pianoforte recital by A. Michalowski.

ALGIERS

824 kc/s, 364 metres; 13 kW.—**7.10 p.m.,** Shipping Notes. **7.15,** Agricultural Report and Weather Forecast. **7.20,** Concert by a Cigány Band. **7.40,** Light Music. **7.55,** News Bulletin. **8.0,** Time Signal. **8.2,** Concert of Variety Music by the Station Orchestra and Soloists. **8.30,** News Bulletin. **8.35,** Concert (contd.). **9.35,** Dance Music, relayed from the Hotel Aletti. **10.25,** News Bulletin. **10.30** (approx.), Close Down.

ATHLONE

725 kc/s, 413 metres; 60 kW., and **CORK, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather, Stock Report and Popular Music on Gramophone Records. **6.15,** Light Music on Gramophone Records. **7.20,** News. **7.30,** Time. **7.31,** Talk on Allotments. **7.45,** Gaelic Talk. **8.0,** Concert by the Dublin Philharmonic Society, relayed from McIntyre Hall; Conductor: Turner Huggard. **10.0,** Lecture Recital by Carl Hardebeck. **10.30,** Time Signal, News, Weather and Close Down.

BARCELONA

RADIO BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**6.0 p.m.,** Programme for Children. **7.0,** Request Gramophone Records. **7.30,** Exchange Quotations and Catalan Grammar Lesson. **8.0,** Light Music on Gramophone Records and News Bulletin. **9.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. **9.5,** Concert by the Station Orchestra; March (Bayer); Danza mora (Fernández); Valse triste (Sibelius); Polonaise from Eugene Onegin (Tchaikovsky). **9.30,** A Musical Comedy, relayed from **Madrid (EAJ7). 11.0** (in an interval), News Bulletin.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**7.0 p.m.,** Agricultural Notes, Tourist Talk, and Dopolavoro Announcements. **7.20,** Giornale Radio and Weather Forecast. **7.30,** Time Signal and Announcements. **7.35** (approx.), Concert of Operetta Music and Songs. In the interval, Art Notes. **9.30,** Popular Music on Gramophone Records. **9.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.0 p.m.,** Wireless Talk. **6.30,** 'Cello Recital by Jovan Mokranjatz. **7.10,** Concert by the Station Orchestra. Soloist: Mme. Nadezda Stajic (Songs). Overture, Romeo and Juliet (Gounod); Two Songs; Selection from Halka (Moniuszko); Songs: (a) Hindu Song (Rimsky-Korsakov), (b) Italian Song (Delibes); Selection from The Duchess of Chicago (Kálmán); Songs: (a) Ninon (Tosti), (b) Song (Krstic). **8.30,** News Bulletin and Relay of European Stations.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12.45 p.m.,** News Bulletin. **1.0,** Gramophone Concert from **Berlin (Witzleben). 2.0,** Programme for Children. **2.30,** Weather and Exchange. **2.45,** Alfred Hein reads from his own Works. **3.0,** Talk: Experiences on the Anglo-German Border Expedition. **3.30,** See **Hamburg. 4.10,** Review of the Week. **5.0,** Folk Song Recital by Margarethe Roll: Da drüben auf jenem Berge; All meine Gedanken; Die Sonne scheint nicht mehr; In einem kühlen Grunde; Kommt, Ihr G'spielen; Der schwere Traum; Herzlich tut mich erfreuen; In stiller Nacht; Wach auf, meine Herzensschöne; Tanzen und springen. **5.30,** A Dialogue on Danzig. **5.55,** Weather Forecast and Announcement. **6.0,** Talk; Religion and Life. **6.30,** A Poem. **6.35,** String Quartet in E Minor, Op. 58 (Beethoven), by the Klingler Quartet. **7.15,** Des tollen Bombergs kumpanei—a Humorous Ghost Play from Old Westphalia (Ernst Keienburg). **8.15,** Variety Programme from **Breslau. 9.10,** Weather, News, and Sports Notes. **9.45,** Weather Report for Shipping. **10.0,** Serenade from **Munich. 11.0** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**3.0 p.m.,** Concert by the German Symphony Orchestra, conducted by Manfred Gurlitt: Overture, Der Schauspieldirektor (Mozart); Ballet Music (Gluck-Mottl); Overture, Alessandro Stradella (Flotow); Six Country Dances (Beethoven); Pesther-Walzer (Lanner); Prelude to Der Bärenhäuter (Siegfried Wagner); Overture, Die Heirat wider Willen (Humperdinck); Waldwanderung (Blech); Overture, William Tell (Rossini); Military March (Schubert). **5.0,** Topical Talk. **5.25,** Erwin Guido Kolbenheyer reads from his own Works. **5.55,** The Witzleben Station informs its Listeners. . . . **6.0,** Topical Talk. **6.10,** Hugo Wolf—a Radio Picture (Erich Fortner). **6.55,** Announcement. **7.0,** Opera Potpourri, by the Station Choir and Orchestra, Maria Schulz-Dornburg, Gertrud Baumann, Hans Heinz Bollmann, Rudolph Galena-Ruckert, and Georg Höllger. **8.40,** A Political Dialogue. **9.5,** Weather, News and Sports Notes. **9.15** (approx.), Radio Report. **9.30** (approx.), Dance Music. **11.30** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**3.10 p.m.,** Concert of Light Music by the Station Orchestra, conducted by J. Odehazel. **4.10,** Talk. **4.25,** Marionette Play. **5.15,** Harmonium Solos. **5.40,** Talk for Housewives. **5.55,** Talk on Housing. **6.0,** See **Prague. 9.15,** See **Moravská-Ostrava. 10.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 1.5 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—12.5 p.m.,** Weather, followed by Gramophone Concert of Variety Music. **12.45,** Time, Weather, News, and Exchange. **1.5,** Gramophone Concert of Popular Music. **1.45,** Programme arranged by the Post Office, with Gramophone Records. **2.10,** Agricultural Prices. **2.40,** Film Review. **3.0,** Talk: Private Schools in Germany. **3.30,** See **Hamburg. 4.30,** Review of Books on Wagner. **4.50,** A Review of the Week's Talks and Literary Intelligence. **5.20,** Talk: Experiences in Esthonia and Latvia. **5.45,** Gramophone Concert of Marches: Old German Fanfare March (Apitius); Old Army March (Homann); Bayrisch Blau (Friedemann); Elfer-Marsch (Reindel); Finnish Cavalry March (arr. Backenberger); Fehrbelliner Reitermarsch (Heinrion); Petersburger Marsch; Alter Präsentier-Marsch (Frederick William III); Dem Königgrätzer Marsch (Pierke); Fredericiana—the Marches of Frederick the Great. **6.30,** Weather and Topical Talk. **7.0,** Variety Programme with Ludwig Manfred Lommel, and the Station Orchestra conducted by Franz Marszalek. **9.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **9.30** (approx.), Dance Music from **Berlin (Witzleben). 11.0** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**3.10 p.m.,** See **Bratislava. 4.10,** Tales of our Grandmamma. **4.20,** See **Prague. 4.50,** Esperanto Readings. **5.0,** Theatre and Film Review. **5.15,** See **Prague. 5.25,** German Transmission: News and Concert of Light Music. **6.0,** See **Prague. 9.15,** See **Moravská-Ostrava. 10.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**11.0 a.m.,** Concert by Mickey's Club Jazz Attraction. **12 Noon,** Le Journal Parlé. **12.10 p.m.,** Gramophone Concert: Tiens! voilà Mathieu (Dantzenberg); La Havanaise (Saint-Saëns); Popular Song, Regret à Lison (Gérard); Ballet Music from Samson and Delilah (Saint-Saëns); Echos of Alsace (Rucquoy); Florentine Song, Pimpinella (Tchaikovsky); Viennese Waltzes (Korngold); Vieni sul Mar (Tchaikovsky); Selection from The Gipsy Baron (Strauss). **4.0,** Concert by the Radio Orchestra, conducted by Charles Walpot. Soloists: Misson (Violin). Walloon March (Ernotte); Suite of Oriental Dances (Hillier); Aphrodite (Jongen); Violin Solos: Cadenet and Oriental Dance (Marsick); An Evening in Lilliput (Berry); Pastoral Suite (Mac-Ramsay); Interlude (Rogister); Binche (Grillaert). **5.0,** Talk: The Walloon District. **5.15,** Gramophone Records: Quartet (Franck); Spanish Rhapsody (Ravel). **6.15,** Report on the Walloon Movement. **6.30,** Le Journal Parlé. **7.0,** Walloon Programme, relayed from the Palais des Beaux Arts. In the intervals, Orchestral Music. **9.0,** Le Journal Parlé. **9.10,** Walloon Programme (contd.). **10.0,** Gramophone Concert of Variety Music.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**11.0 a.m.,** Gramophone Concert. Overture, Fra Diavolo (Auber); Lusinga (de Curtis); Liebeslied (Schubert); Xepia Opaia (Woodforde-Finden); Valse caprice (Bazin); Popular Polish Dance, Szajerek; Selection from Les Erynnies (Massenet). **12 Noon,** Le Journal Parlé. **12.10 p.m.,** Concert by Mickey's Club Jazz Attraction. **4.0,** Mozart Concert on Gramophone Records. Overture, Idomeneo-Song, Deh vieni non tardar; Concerto in E Flat for Violin and Orchestra: Song from Il Re Pastore; Waltz in B Flat; Waltz in F; Symphony No. 40 in G Minor. **5.0,** Peter Benoit Pianoforte Recital by Jef Van Hoof. Dedende Khidde; Nachtvlinders; Zielsbegeestering. **5.15,** Talk on History: Philip the Good. **5.30,** Light Music on Gramophone Records. **6.0,** Song Recital by Mlle. Fernande Lettany. **6.15,** Talk: Travelling in Norway. **6.30,** Agricultural and Horticultural Report. **7.0,** Concert by the Radio Orchestra, conducted by Charles Walpot. Soloists: MM. Rubeau (Tenor) and Gans (Bass) and Mlle. Baritza (Soprano). Florentine March (Fucik); Overture, Si j'étais Roi (Adam); Waltz, Toujours ou jamais (Waldteufel); Songs for Tenor; Violin Solo: Zigeunerweisen (Sarasate); Songs for Soprano; Perpetuum mobile (Joh. Strauss). **7.45,** Talk. **8.0,** Concert (contd.). Tenor and Bass Duets: Flemish Songs (Walpot); Waltz Potpourri, Was die Donau erzählt (Morena); Songs for Tenor; Hooi-koorts (Mireille); Japanese Bell Dance (Yoshitomo); Selection from White Horse Inn (Benatzky). **9.0,** La Journal Parlé. **9.10,** Light Music on Gramophone Records. **9.45,** Orchestral Concert, relayed from the Ancienne Belgique.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**3.0 p.m.,** Light Music and Romanian Music by the Sibiceano Orchestra. In the interval at **4.0,** Radio Journal. **5.0,** Talk: Romanian Influence Abroad. **5.20,** Talks on Hygiene, Sport, and the Tourist Traffic. **6.0,** Sacred Songs and Popular Romanian Songs by the Carmen Choir, relayed from the Romanian Athenæum. **7.45,** Radio Journal.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW.—Also relays on **840 metres** from **6.0** (approx.) till Close Down. **4.30 p.m.,** Concert by the Nandor Sovanka Cigány Band. **5.30,** Answers to Correspondents. **6.0,** Popular Music on Gramophone Records. **7.0,** Reading. **7.30,** Readings by Aranka Várady. **8.10,** Concert of Light Music by the Opera House Orchestra. **9.40,** Concert by the Georg Guttenberg Jazz Band, relayed from the Café Ostende.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **KALUNDBORG, 260 kc/s, 1,153 metres;** 7.5 kW.—**11.0 a.m.,** Town Hall Chimes. **11.2 to 1.0 p.m.,** Concert from the Bellevue Strandhotel. **1.30,** Gramophone Records. **2.0,** Reading for Children. **2.30,** Orchestral Concert, conducted by Launy Gröndahl. Soloist: Johannes Viggo-Pedersen (Pianoforte): Overture, The Siege of Corinth (Rossini); Waltz, Donauwellen (Ivanovici); March and Dance from Belshazzar (Sibelius); Selection from Hansel and Gretel (Humperdinck); Dance from Maskarade (Carl Nielsen); Pianoforte Solos: (a) Toccata and Fugue in D Minor (Bach-Tausig), (b) Impromptu in F Minor (Schubert), (c) Rhapsody in E Flat (Brahms); Concert Overture, Til Kleopters (N. W. Gade); Selection from Syvsoverdag (J. P. E. Hartmann); March from Thorvaldsskirden (J. P. E. Hartmann); Two Pieces from Völund Smed (Henriques); Two Pieces from Lacksmi (Ludolf Nielsen). **4.0,** Exchange and Market Prices. **4.50,** Reading in English from Three Men on the Pummel (Jerome K. Jerome). **5.20,** French Lesson. **5.50,** Weather and News. **6.15,** Time Signal **6.30,** Talk: The Situation in the East—China. **7.0,** Town Hall Chimes. **7.1,** Kean—Comedy in Five Acts (Dumas). **9.0,** News Bulletin. **9.15,** Mandoline Concert. Minuet in G (Beethoven); Nocturne, Op. 7, No. 2 (Chopin); Gavotte, Stephanie (Czibulka); Waltz in E Flat (Durand); Two Russian Folk Dances; Tarantella (Graziani Walter). **9.45,** Dance Music from the Lodberg Restaurant. In the interval at **11.0,** Town Hall Chimes. **11.15** (approx.), Close Down.

CORK.—See **Athlone.**

CRACOW

950 kc/s, 312.8 metres; 1.5 kW.—**6.30 to 10.0 p.m.,** See **Warsaw. 10.0,** Light Music and Dance Music from the Pavilion Restaurant. **10.50,** Talk. **11.0,** Fanfare from Notre Dame.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11.0 a.m.,** Popular Music on Gramophone Records. **11.30,** News. **11.45,** Radio Concert. **5.0 to 6.0,** Programme in English by the I.B.C., C. Danvers-Walker, B. McNabb, and F. Lamping announcing. **5.0,** Song Recital for Isle of Thanet Listeners: A Brown Bird Singing; Dance away the Night; I love the Moon; Let me dream in your Arms again; Rollin' down the River; Let me sing and I'm happy. **5.20,** Concert for Dover Listeners: Military Band Music; Cupid's Army (Sievier); Down South (Myddleton); The Mad Major (Alford); In the Sudan (Schek); Selection from Floradora (Stuart). **5.40,** Concert for Folkestone Listeners. Light Music: That tiny Teashop; Song, Tell me to-night; Argentina Amor; Bells across the Meadow; Song, La Danza (Rossini); The clock is playing. **6.0,** Radio Gazette. **6.20,** News and Popular Music on Gramophone Records. **6.45,** Answers to Correspondence and News. **8.0,** Organ Recital by M. Devernay. **11.0 p.m.** till Close Down, Programme in English by the I.B.C. **11.0,** International Broadcasting Club Concert of Special Request Items: Eleven more Months and Ten more Days; Valencia; Absent; He played his Ukelele as the Ship went down; A Waltz of Long Ago; Ole Man River; Love's Dream after the Ball; Toasts. **12 Midnight,** Club Concert for Sunderland Listeners: Part I, Variety Music: Mason's Apron; I've got one Arm round Mary; She's too good for me; Silvery Moonbeams; Rakes of Clonmel; You've got to laugh at Care; The Jilted Dutchman; The Police Station; Part II, Songs: Love is a Dreamer; I'm following you; Mona; Hawaiian Trio: Aloma; For the likes of you and me; Would you be My Fate is in your Hands; Hawaiian Trio: Julien. **1.0 a.m. (Sunday),** Accordion Solos: Blue Bells (Beaton); La Java de Doudoune (Padilla); Marche joyeuse (Cuvelier); Medley of English Airs; Prince Charlie (Beaton); The Skaters' Waltz (Waldteufel); Arlette (Phyllyse); Medley of Scottish Airs. **1.30,** Songs: The Night you sang "Sweet Genevieve"; That dear old Song; Forget-me-not; Old Pal; We live and we love; Little Boy Blue; My old Irish Cottage; Lay my Head beneath a Rose. **2.0,** Light Music: Lights of Paris; It always starts to rain; It happened in Monterey; Just a little closer; Linda; I don't mind walking in the Rain; Little Painted Doll; Got the Rhythm, got the Park; The Waltz you saved for me;

Smile, darn ya, smile; Carry on; My Cradle is the Desert; With my Guitar and you; Lazy Day. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; Cassel, 1,220 kc/s, 245.9 metres; and Trier, 1,157 kc/s, 259.3 metres.—2.30 p.m., Programme for Children. **3.50,** Economic Notes. **4.0,** See **Stuttgart. 5.15,** Exchange Quotations. **5.25,** Talk: The Reclamation of Waste Land under the State Employment Schemes and the National Memorial Trust. **5.50,** Dialogue: Philosophical Outlook and Race in Germany. **6.15,** Time, Programme Announcements, Weather and Exchange. **6.30,** See **Stuttgart. 7.15,** Cagliostro in Wien—Operetta in Three Acts (Joh. Strauss). **9.20,** Time, News, Weather and Sports Notes. **9.45,** See **Munich. 11.0** (approx.). Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres; 1.5 kW.** Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—3.30 p.m.** (from **Bremen**), Orchestral Concert, conducted by Vincent Ferean. March, Götterfunken (Rumohr); Overture, Militärbefeh (Schmidt); Two Arias from Lohengrin (Wagner); Potpourri, Military Memories (Reckling); Trumpet Solo, Oh du mich liebst, from Nakiris Hochzeit (Lincke); March, Bayerngruss (Kraft); Defiliermarsch (Faust); March from The Huguenots (Meyerbeer). **4.30,** Dialogue: Revolts and Revolutions. **4.55** (from **Hanover**). Variety Programme. **6.0,** Talk: Labour Politics in Australia. **6.25,** Weather. **6.30** (from **Kiel**), Concert by the Kiel Zither Club, conducted by Albert Richter. Concert Overture, No. 3 (Kollmaneck); Minuet from the Sonata in A Minor (Kollmaneck); Intermezzo, Am Märchenbrunnen (Kollmaneck); Two Little Tone Pieces (Pugh); (a) Liebesgruss, (b) Mairöschen; Gavotte, Frühlingstraum (Schneider). **7.0,** Dramatic Programme. **9.15,** Time, Weather, Political Review and Sports Notes. **9.35,** Topical Talk. **9.45,** Benefit Programme for Hamburg Authors, relayed from the Uhlenhörst Fährhaus.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 453.2 metres.—12.5 p.m.,** Gramophone Concert: Selection from The Tales of Hoffmann (Offenbach); Wien bei Nacht (Komzak); Salut d'amour (Elgar); Serenade to a Kiss (Elgar); Hochzeitszug in Liliput (Translateur); Intermezzo, Seffra (Siede); Auf der Wanderschaft (Manfred); Waltz, Dorfschwalben aus Testerreich (Jos. Strauss); Moonlight on the Alster (Fétras); The Clock (Loewe); Tom, the Rhymer (Loewe); Wenn man recht verliebt ist (Schmidt-Gentner); Nur Du (Schmidt-Gentner); O Deutschland hoch in Ehren (Lindemann); The Russian Pedlar (Farraris); In the Bird Shop (Lake); Potpourri, Extravaganzen (Morena); March, Dolores (Pene); Alter Präsentiermarsch (Friedrich Wilhelm III). In an interval at **12.20,** Announcements. **1.30,** Programme arranged by the Post Office, with Gramophone Records. **2.0,** Agricultural Prices and Exchange. **2.30,** Programme for Children. **3.0,** Concert by the Small Station Orchestra. Overture, Hungaria (Nagypal); Suite, Ein Schubert-Abend in Wien (Ralf); In the Mystic Land of Egypt (Ketelbey); In a Persian Market (Ketelbey); Selection from The Hermit's Bell (Maillart); Waltz, Marienklänge (Jos. Strauss); Lehár Potpourri (Hruby); Two old Dutch Dances (Heykens); Zu Grossmütterchens Geburtstag (Heykens); Potpourri, Vom Rhein zur Donau (Rhode). **5.0,** Programme Announcements. **5.10,** Programme Announcements in Esperanto. **5.15,** Agricultural Prices. **5.25,** World Market Prices. **5.40,** Talk. **6.0,** Talk: The Tourist Agency. **6.20,** Musical Pictures of Towns—Pianoforte Recital by Julius Dahlke. Berlin (Wehle); Hamburg (Niemann). **6.50,** Weather and News. **7.0** till Close Down, Programme from **Berlin (Witzleben).**

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**). **11.40 a.m. to 7.40 p.m.,** Programme of the Workers' Radio Society (V.A.R.A.). **11.40,** Concert by the V.A.R.A. Mandoline Band, conducted by J. B. Kok. **12.10 p.m.,** Music by Mac's Four. **12.30,** Organ Recital by J. Jong Barcarolle (Offenbach); Aubade d' autumne (Lacôme); Serenade (Waldau). **12.45,** Music by Mac's Four (contd.). **1.5,** Organ Recital (contd.).

APRIL 8th **SATURDAY** ***continued***

Wir schlagen ein. **1.50,** Music by Mac's Four, (contd.). **1.40 to 1.55,** Interval. **1.55,** Light Music on Gramophone Records. **2.30,** Concert by De Notenkraers. Soloist: Mlle. Elly Krasser (Soprano). Waltz, Accelerationen (Strauss); Das Lied vom hübschen Mädel (Reinhardt); Czardas from Countess Maritza (Kalman); Three Viennese Songs, Gramophone Records. Songs with Orchestral Accompaniment: (a) Two Swabian Dances (Urbach), (b) La Paloma (Yradier), (c) Ins blaue Leben (Erwin). Songs with Accompaniment on Two Pianofortes: Three Airs from Ball in Savoy (Abraham). **3.10,** Illustrated Talk on Music. **4.0,** Concert by the V.A.R.A. Children's Choir. In the interval at **4.10,** Talk. **4.40,** Concert by De Fliermuiters, conducted by H. de Groot. Soloist: Mlle. E. Philipse (Songs). **5.20,** Literary Talk. **5.40,** Concert by the V.A.R.A. Orchestra, conducted by de Groot. March, El Picadar (Oscheit); Romantic Suite (Armandola); Harvest Festival in the Ukraine (Kubat); Crescendo (Lassen); Salomé's Vision (Archibald); A Wedding Day on Troldhaugen (Greig); Gern hab' ich die Frau'n geküsst (Lehar). Gramophone Records, Polka (Balling); Prima Ballerina (Translateur); Rossini Potpourri (Tavan). **7.10,** Talk on the Elections. **7.40** till Close Down, Programme of the Algemeene Vereeniging Radio Omrope (A.V.R.O.). **7.40,** Time Signal. **7.41,** The St. Matthew Passion (Bach) relayed from the Concertgebouw, Amsterdam. Conductor: Dr. W. Mengelberg. In the interval: Popular Music on Gramophone Records. **10.40,** News Bulletin. **10.50,** Light Music on Gramophone Records. **11.40,** (approx.) Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—Programme of the Catholic Radio Society (K.R.O.). **11.55 a.m.,** Concert by the Wim Metselaar Trio. March (Gray); Waltz, Wine, Woman and Song (Joh. Strauss); Extase (Gamne); Arabesque (Debussy); Andante from the Concerto for Violin in E (Mendelssohn). Selection from Viktoria and her Hussar (Abraham). Gramophone Records, Marionettenbrautzug (Rathke); Zwei schwarze Augen, zwei Gitarren (arr. Weninger); Ich suche Liebe (Buder); Johnnie (Holländer); Selection from The Love Parade (Schertzinger). **1.25 p.m.,** Interval. **1.40,** Programme for Young People. **2.10,** Programme for Children. **3.40,** Popular Music on Gramophone Records. **4.10,** Concert by the K.R.O. Orchestra, conducted by van 't Wond. March, The Stars and Stripes (Sousa); Overture The Daughter of the Regiment (Donizetti); Waltz, Paysage d'antomne (Waldteufel); Sang und Klang aus dem Osten (Eberle); Suite, In a Fairy Realm (Ketelbey); Waltz, Golden Rain (Waldteufel); March, San Lorenzo (de Silva). **5.10,** Esperanto Lesson. **5.25,** Orchestral Concert (contd.). Virginia (Wood); The Blue Pavilion (Armandola); Waltz, Carmen Sylva (Ivanovici); Dance of the Marionettes (Gillet); March, The Liberty Bell (Sousa); Ballet Music from Coppélia (Delibes); March, The Diplomat (Sousa). In an interval at **6.0,** Press Review. **6.50,** Scientific Talk. **7.10** Police Report. **7.25,** Sports Notes. **7.40,** Variety Concert by the K.R.O. Boys and the Doeke Stuurop Ensemble, with Songs to the Lute by Geert Dils. **10.10,** Popular Music on Gramophone Records. **10.40,** News. **10.45,** Light Music on Gramophone Records. **11.40** (approx.). Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.7 kW. **7.30 p.m.,** Radio Concert. **8.0,** Weather, Racing Results and News. **8.15,** Radio Concert. **11.0 to 12 Midnight,** Programme in English, by the I.B.C. H. K. Hitchcock announcing. **12 Midnight** (approx.). Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**6.0 p.m.,** Announcements and Gramophone Records. **6.10,** Joseph Alexander Galuszka reads his own Poems. **6.30,** See **Warsaw. 10.30,** Dance Music.

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—**7.20 p.m.,** Popular Programme. **7.40,** Talk: Societies for the Study of Economics. **8.0,** Concert. **8.30,** Sports Notes. **8.40,** Concert. **9.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW; **and Helsinki, 815 kc/s, 368.1 metres.—6.25 p.m.,** Herra Tarkastaja—Play (Helarintta). **6.45,** Dance Music. **7.45,** News in Finnish. **8.0,** News in Swedish. **8.15,** Dance Music by a Military Band. **10.0** (approx.), Close Down.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Orchestral Concert. Overture, Banditenstreiche (Suppé); Bauern-Suite (Ailbout); Selection from Martha (Flotow); The Butterfly Chase (Keler-Bela); Waltz, Traumideale (Fucik); Potpourri, Musikalische Seifenblasen (Urbach); Spring Serenade (Lacombe); Gallop, Durchs Ziel (Translateir). In the interval at **1.0 p.m.,** News. **1.35,** Week-end Concert on Gramophone Records. **2.30,** Exchange and Time Signal. **2.50,** Programme for Children. **3.10,** Talk: The Art of Speaking Naturally. **3.30,** Reading in English. **4.0,** Baritone and Pianoforte Recital. Pianoforte Solo: Kinderszenen (Schumann); Baritone Solos: Songs from Die schöne Müllerin (Schubert): (a) Wohin, (b) Halt, (c) Der Neugierige, (d) Pause, (e) Eifersucht und Stolz, (f) Die liebe Farbe, (g) Die Röse Farbe, (h) Trocken Blumen. Pianoforte Solos: (a) Thirty-two Variations (Beethoven), (b) Tarantella from Venezio e Napoli (Liszt). **5.15,** The World on Gramophone Records—Sunny Days in Dalmatia. **5.40,** Weather, Time, Exchange and Sports Notes. **5.50,** Talk: Shipping on the Rhine. **6.10,** Talk: Man and Society. **6.30,** Talk: The Significance of Technical Progress. **6.55,** First General News. **7.0,** Folk Songs to the Lute, by Hermann Munk. **7.20,** Concert by the Münster Municipal Orchestra, conducted by Arthur Wolf, with the Bochum Vocal Trio, Karl Marstaller (Harp) and Fritz Rohde (Pianoforte). Overture, The Merry Wives of Windsor (Nicolai); Selection from Hansel and Gretel (Humperdinck); Piece for Harp and Strings, Harfners Abendgesang (Kienzl). Songs for Trio (Wiltberger): (a) Die innere Stadt; (b) Zweo Schühlein; (c) Bei dir; (d) Tanzliedchen. Festival Overture (Lassen); Second Suite from Peer Gynt (Grieg). Harp Solos: (a) Andante (Schuecker; (b) Wellenspiel (Posse). Kaiserwalzer Strauss). **9.5,** News and Sports Notes. **9.30,** Gramophone Report on the World Championships in Billiards, relayed from the Gürzenich, Cologne. **9.50,** Serenade, conducted by Eysoldt. **11.0** (approx.). Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **DRESDEN, 941 kc/s, 319 metres.—12 Noon,** News, Weather and Time. **12.15 p.m.,** German Songs and Dances on Gramophone Records, followed by Exchange Rates. **1.0,** Wireless Hints and Notes. **1.30,** Programme for Children. **2.15,** Chess Lesson. **2.45,** Economic Notes. **3.0,** Talk on Music, followed by Labour Market Report. **3.30,** Concert from **Berlin (Witzleben). 5.0,** Legal Talk: Monetary Difficulties. **5.30,** German for Germans. **5.50,** A Modern Dictionary. **6.0,** Pianoforte Recital by Walter Petzet, with Introductory Talk: Beethoven and the German Pianoforte Sonata; Sonata in C Minor; Der todkranke und wieder gesunde Hiskias (Kuhnau); The Pathetic Sonata in C Minor, Op. 13 (Beethoven). **6.35,** Talk: The World of Atoms and Molecules. **7.0,** Concert, relayed from the Cathedral, Bautzen. Soloist: Horst Schneider (Organ). Toccata in A (Wenzel); Crucifixus, for Choir, Soprano, Baritone, Organ and Orchestra (Hermann Simon). **7.30,** In the Centre of the Reich. **8.10,** News. **8.15,** The Malice of Objects—a Humorous Sequence. **9.20,** News. **9.30** (approx.), Concert by the Station Orchestra, conducted by Theodor Blumer. Serenade, Op. 108 (Thomas); Ballet Suite from Die Liebesprobe (Mozart); Selection from The Miracle (Humperdinck; Overture, Schirin und Gertraude (Graener); Heroic March in G Minor (Schubert); Selection from Rienzi (Wagner); Symphonic Dance (Raebel); German Dances (Reger); Perpetuum mobile (Ries); Schlummerlied (Ries). **11.0** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.,** Talk on Sociology. **6.30,** Philosophical Talk. **7.0,** Concert by a Mandoline Sextet. **8.0,** Couplets. **8.30,** Quintet Concert. **9.0,** Time, News and Light Music.

LWOW

788 kc/s, 381 metres; 16 kW.—**6.10 p.m.,** Miscellaneous Items. **6.30,** See **Warsaw. 11.0** (approx.). Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW. —**6.30 p.m.,** Radio Gazette for Lyons and the South East. **7.40,** Choral Concert, relayed from the Salle Rameau. After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**6.0 to 8.0 p.m.,** Programme for Listeners in the Canary Islands, Guinea, and America. **6.0,** Concert of Light Music. **7.15,** Talk. **7.30,** Popular Music. **8.0,** Interval. **10.30,** See **Madrid, EAJ7.** In the interval, Radio Chronicle. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2kW. **7.0 p.m.,** Chimes, Exchange Quotations and Request Gramophone Records. **8.15,** News Bulletin. **8.30 to 9.0,** Interval. **9.0,** Linguaphone English Lesson. **9.30,** Chimes, Time Signal and Transmission of a Musical Comedy. **11.45,** News Bulletin. **12 Midnight,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**3.10 p.m.,** See **Bratislava. 4.10,** See **Prague. 4.50,** See **Brno. 5.0,** Music Review. **5.15,** See **Prague. 5.25,** Song Recital by Vera Borska. **6.0,** See **Prague. 9.15,** Radiofilm—Programme of Songs, Instrumental Solo, Dramatic Items and Music by the Station Orchestra, conducted by J. Plichta. **10.30** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 1.7 kW. Relayed by **Augusburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—12 Noon,** Orchestral Concert, conducted by Erich Kloss. **1.0 p.m.,** Time, Weather, News, Announcements, Exchange and Post Office Announcements. **1.25,** Literary and Musical Programme. **2.25** (from **Nürnberg**), Talk: Castles and Ruins in Switzerland. **2.45,** Weather and Agricultural Notes. **3.0,** Labour Market Report. **3.10,** Concert by the Station Orchestra, conducted by Karl List. **4.20,** Programme for Young People. **5.5,** Wireless Hints and Notes. **5.20,** Concert of Gregorian Chorals by the Cathedral Choir, conducted by Ludwig Berberich: Liturgical Songs for the Blessing of the Palms and the Mass of Palm Sunday; Songs for Holy Week: (a) Christus factus est, (b) Ecce lignum, (c) Ubi caritas. **5.55,** Zither Recital: Venezia (Kollmaneck); Romance (Bauer); Vögelein in den Zweigen (Obermaier); Waltz, Moss Roses (Bosc). **6.15,** Talk on South-West Africa. **6.35,** Wireless Notes. **6.55,** Wind Instrument Concert by Ernst Krug and his Band: March (Bärnklau); Selection from Eva (Lehár); Waltz, La Hussarde (Ganne); Song Potpourri (Frantzen); The Reservist's Dream (Kockert); Potpourri, Münchner Leben (Reeg); March, Erinnerung an Metz (Krug); March, Konigs-Ulanen (Kreissl). **7.55** (from **Nürnberg**), Alle Vöglein sind schon da—a Song Sequence. **8.45,** Reading in Bavarian Dialect. **9.0,** Concert by the Station Choir: Two Songs for Mixed Choir (Schumann): (a) Micht zieht es nach dem Dörfchen hin, (b) Sommerlied; Two Songs for Women's Choir (Brahms): (a) Am Wildbach, (b) Märznacht; Two Songs for Male Voice Choir: (a) All' mein Gedanken (Rein), (b) Klinge lieblich und sacht (Raphael); Mixed Choir: Dance Song (Schaeffer). **9.20,** Time, Weather, News and Sports Notes. **9.45,** Serenade, conducted by Erich Kloss. **11.0** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres. —3.15 p.m.,** Popular Concert on Gramophone Records. **4.15,** Programme for Children. **5.15,** Norwegian Music for Hardanger Fiddle and Violin. **5.45,** Talk on Economics. **6.0,** Announcements, Weather and News. **6.30,** Talk. **7.0,** Time Signal. **7.2,** Literary and Musical Programme arranged by the Norwegian Authors' Society. **8.40,** Weather, News and Topical Talk. **9.15,** Orchestral Concert of Operetta Music by Kálmán, Strauss, Offenbach, Gilbert, Kollo, and Lehár. **10.0,** Dance Music on Gramophone Records. **11.0** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

538 kc/s, 537.6 metres; 3 kW.—**7.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Talk and Giornale Radio. **7.20,** Sports Notes. **7.30,** Time Signal and Announcements and Light Music on Gramophone Records. **7.45,** Katja the Dancer—Operetta (Kálmán). In the intervals: Book Review and Announcements. **9.55,** News Bulletin.

PARIS

EIFFEL TOWER (FLE), 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **9.26 a.m.** and **10.26 p.m.** (Preliminary and 6-dot Signals).—**5.45 p.m.,** Talk on the Theatre. **6.0,** Le Journal Parlé. **7.20,** Weather Forecast. **7.30,** Pianoforte Recital by Marie Antoinette Pradier, with Commentary by André Delacour: Melodies (Lully): (a) Air tendre, (b) Gigue; Melodies

(Dagincourt): (a) L'Etourdie. (b) La Moulin à vent; Les Tourbillons (Dandrieu); Les Fifres (Dandrieu); Sarabande (Destouches); Allegro (Schubert); Gigue (Loeillet); Romance (Marais); Rondeau (Marais); Le Concon (Daquin); La Victoire (Duphly). **8.0,** Quartet Concert: Quartet in C Minor, Op. 51 (Brahms); Tango (Albeniz-Kreisler); Spanish Dances (Sarasate): (a) Playera, (b) Zapateado; Caprice for Thirty Violins: Erlkönig (Schubert-Ernst).

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.0 p.m.,** Gramophone Concert of Light Music. **6.30,** Answers to Correspondence. **6.35,** Gramophone Concert (contd.). **7.0.** Review of the Week. **7.5,** Theatre Notes. **7.15,** Interval. **7.30,** Chamber Music Concert. **8.0,** Interval. **8.10,** Dance Music by the Sonora Band. **10.0,** News. **10.15,** Gramophone Dance Music. **11.0** (approx.), Close Down.

PARIS

RADIO PARIS (CFR), 174 kc/s, 1,725 metres; 75 kW.—**5.45 a.m.,** Physical Culture. **6.30,** Weather and Physical Culture (contd). **6.45,** Light Music on Gramophone Records. **7.0,** Press Review and Weather. **8.0,** Concert by the Conservatoire Concert Society. **11.0,** Orchestral Concert: Suite, La douce maison (Lacôme); Impressions matinales (La Tourbelle); Rustic Suite (Landry); Nuages (Georges); Angelus du soir (Andrieu); Echos du bocage (Rades); Dans un jardin la nuit (Bernard); Danse villageoise (Chabrier-Rudd); Melody (Beethoven); Le chemin creux (Ladurantt); Le bal du menétrier (Roparts). In the intervals at **12 Noon,** Exchange, News and Weather, and at **12.30 p.m.,** Exchange. **1.0,** Exchange. **2.0,** Report on the Football Match between Cannes and the Roubaix Racing Club. **2.45,** Exchange and Market Prices. **3.45.** Light Music on Gramophone Records. **4.0,** Programme for Children. **6.0,** Talk on Birds. **6.20,** Agricultural Talk. **6.45,** Commercial Prices and News. **7.0,** Viennese Programme. **7.30,** News and Weather. **7.45,** Variety Programme. **8.15,** Press Review and News. **8.30,** Concert of Light Music on Gramophone Records. In the interval at **8.40,** Review by Jean Rieux.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres. 9.0 p.m.,** Programme to be announced. **10.0,** The United States Government in Pittsburgh—The U.S. Employment Service by S. Canchiere. **10.15,** Hotel Sherman Orchestra, from **New York. 10.30,** Behind the Law: Tales of the Pennsylvania State Police. **10.45,** Little Orphan Annie, from **New York. 11.0,** Hotel Lexington Orchestra, from **New York. 11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reader. **11.29,** Temperature Report. **11.30,** A Recreo by Bill and Alex of the Downtown Y.M.C.A. **11.45,** Smith Ballew and his Orchestra. **11.59,** Time Signal. **12 Midnight,** Homey and Old Fashioned Quartet. **12.15 a.m. (Sunday),** Adventures of Aunt Lulu—KDKA Players. **12.30,** Atkinson String Ensemble. **12.45 to 4.0. New York** Relay. **12.45,** Townsend Murder Mystery. **1.0,** American Taxpayers' League. **1.15,** The Boston Symphony Orchestra. **3.15,** Salon Singers. **3.30,** Cuckoos. **4.0,** Time Signal. **4.1,** Teaberry Sport Review. **4.11,** Temperature Report. **4.12.** Weather Report. **4.13,** KDKA Artist Bulletin. **4.15,** Press Last-minute News. **4.20,** Messages to Dwellers of the Far North.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**3.10 p.m.,** See **Bratislava. 4.10,** Talk on Economics. **4.20,** Czech Lesson for Germans and German Lesson for Czechs. **4.50,** Variety Music on Gramophone Records. **5.5,** Agricultural Report. **5.15,** Talk for Workers. **5.25,** News in German. **5.30,** German Transmission: Scenes from the Minna Passion Plays. **6.0,** Chimes. **6.1,** News. **6.10,** Medical Talk. **6.25,** Round the World on Gramophone Records. **7.0,** Variety Programme. In the interval at **8.0,** Time Signal. **9.0,** Time Signal. **9.1,** News. **9.15.** See **Moravska-Ostrava. 10.30** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.—5.0 p.m.** (from **Geneva**), Talk. **5.30** (from **Lausanne**), Book Review. **6.0** (from **Lausanne**), Weather Forecast, News Bulletin, and Announcements. **6.30** (from **Lausanne**), Talk or Films. **7.0** (from **Lausanne**), Concert of Light Music relayed from the Bel-air Metropole. **7.30** (from **Geneva**), Recitation of Fables (La Fontaine). **7.45** (from **Geneva**), Harp Recital by Joseph Vita. **8.0,** Concert by the Station Orchestra, conducted by Robert Echenard. **9.0,** News Bulletin and Weather Forecast. **9.10** (from **Geneva**). Dance Music by the Broadcasting Serenaders. **10.30** (approx.). Close Down.

REYKJAVIK

260 kc/s, 1,206 metres; 21 kW.—**8.30 p.m.,** Weather Report. **9.0,** Chimes. **9.2,** News Bulletin. **9.30,** Reading. **10.0,** Concert by the Station Quartet, followed by Choral Music on Gramophone Records. After the Concert, Dance Music. **1.0 a.m. (Sunday),** Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**5.30 p.m.,** French Lesson. **6.0,** Weather Report. **6.5,** Songs from Operettas. **7.0,** News. **7.20,** Humorous Programme. **7.50,** Variety Music on Gramophone Records. **8.30,** Dance Music. **10.0** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,810 kc/s; 25.4 metres.—12 Noon,** Time and Announcements. **12.2 to 1.15 p.m.,** Orchestral Concert: Almeria (Matty); Voce lontana (Montanaro); Italian Caprice (Tchaikovsky); Melody (Gilbert); Non più (Cimara); Pulcinella (de Nardis); Selection from Rose Marie (Friml); Saxophone Solo, Elegy (Königsberger); Children's Games (Burgmein); Napoli-Paris (Carducci). **3.30,** Programme for Children. **4.0,** Exchange, Announcements, Report of the Royal Geographical Society and Giornale Radio. **4.5,** Reading. **4.30 to 5.15,** Orchestral Concert: March, Omnia (Ottaviani); Florentia (Andlovitz); Selection from Adriana Decouvreur (Cilea); Grotesque (Rust); Melody (Strauss); L'Ultimo amore (Culotta); Fanciulle belled (Anzi); Ecco i goliardi (Fiaccone). **6.0 (Naples),** Shipping and Sports Notes. **6.10,** Atmospheric Signals. **6.20,** Giornale Radio and Agricultural Notes. **7.0,** Time and Announcements. **7.15,** Song Recital by Elena Cheli (Soprano). **7.30,** Sports Notes and and Tourist Report. **7.45,** Relay from a Theatre. In the intervals: Review of New Books and Literary Notes. **9.55,** News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.—12 Midnight,** Hotel New Yorker Orchestra, from **New York. 12.15 a.m. (Sunday),** Stock Reports. **12.30,** Lady Fingers (Pianists). **12.45, to 4.0, New York** Relay. **12.45,** The World To-day by James G. McDonald. **1.0,** Viennese Programme. **1.30,** The Economic World To-day. **2.0,** The Blue Danube. **2.30,** Musical Programme. **3.0,** B. A. Rolfe and his Terraplane Orchestra. **4.0,** Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres.—11.28 a.m.,** Time Signal from Neuchâtel Observatory. **11.30,** Weather and News. **11.40** (from **Berne**), Variety Music on Gramophone Records. **12.10 p.m.** (from **Berne**), Jazz Music by Jimmy Mack and his Boys. **12.40,** Weather and Exchange. **12.45** (from **Basle**), The Listeners' Quarter-of-an-Hour. **1.0** (from **Basle**), Book Review. **1.30** (from **Basle**), Choral Music on Gramophone Records. **2.0** (from **Basle**), Talk: The Importance of Salt in Food. **2.30** (from **Basle**), Frieda Brunner reads from her own Works. **3.0** (from **Basle**), Accordion Music. **3.40** (from **Basle**), Talk on Air Travel. **4.0,** Variety Music on Gramophone Records. **4.30,** Weather. **4.35 to 5.30,** Interval. **5.30** (from **Basle**), Talk in connection with the Opening of the Exhibition of Contemporary Paris Art at the Kunsthalle: Georges Braque and Modern Painting. **6.0** (from **Zürich**), Chimes from Zürich Churches, followed by Time, Weather and Market Prices. **6.15** (from **Basle**), Talk: The Development and Achievements of Wireless. **6.45** (from **Basle**), Introductory Talk to the following Relay. **6.45** (from **Basle**), Tenth Symphony Concert by the Musikgesellschaft, conducted by Felix Weingartner; Soloists, Frieda Dieroff (Contralto) and Fritz Hirt (Violin). **9.0,** Weather and News. **9.10** (from **Basle**). Dance Music on Gramophone Records. **10.0** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Goteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—3.0 p.m.,** Concert of Light Music. **4.5** (from **Goteborg**), Programme for Children. **4.30,** Popular Music on Gramophone Records. **5.30,** Tipperary—Tea for Two—Mimi—a History of the Popular Song, with illustrations. **6.15,** Weather and News. **6.30** (from **Göteborg**), Old Time Dance Music. **7.15,** Talk by Ludvig Norström. **7.45** (from **Sundsvall**), Concert by Wind Instrument Orchestra: March, Hoch Heidecksburg (Herzen); Waltz, Morgenblätter (Joh. Strauss); Selection from The Desert Song (Romberg); Serenata Italiana (Mignon); Air from Lysistrata (Lincke); Potpourri (Fritzell). **8.45,** Weather and News. **9.0,** Dance Music by the Gösta Jonsson Orchestra, relayed from the Savoy. **10.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**10.30 a.m.,** Gramophone Records: The Trout Quintet (Schubert); Fantasia in C Minor (Mozart); Polonaise (Vieuxtemps); Interlude and Dance from La vida breve (Falla). **11.45,** News. **12 Noon,** Time and Exchange. **12.5 p.m.,** Light Music on Gramophone Records. **1.0,** Dance Music on Gramophone Records. **2.0 to 2.45,** Interval. **2.45,** Talk: Mendelssohn's Pianoforte Compositions. **3.0,** Orchestral Concert, conducted by Maurice de Villers: Overture, The Bartered Bride (Smetana); The Moldau (Smetana); Orchestral Legend, Zorahayda, Op. 11 (Svendsen); Norwegian Rhapsody (Svendsen); Symphonic Poem, La jeunesse d'Hercule (Saint-Saëns); Symphonic Variations for 'Cello and Orchestra (Boëllmann); Symphony (Boëllmann). **5.0,** Legal Talk in German. **5.15,** French Elocution Lesson. **5.30,** Gramophone Concert: In a Clock Store (Orth); In a Toy Shop (Jessel); The Skaters' Waltz (Waldteufel); Waltz, Les sirènes (Waldteufel); Cuckchafers' Tea Party (Noack); Parade of the Sparrows (Noack); Envoi de fleurs (Bernard); Petite brunette (Madeleine); Chant du marin (Van Parys); Melody (Dolly-Stransky); Military March (Schubert); Triumphal March from Aïda (Verdi). **6.15,** Gardening Talk in German. **6.30,** Time and News. **6.45,** Popular Music on Gramophone Records. **7.15,** Lottery Results. **7.30,** Four Plays in French: L'Homme à la Valise—One-Act Comedy (Gaston Guillet); Les démenageurs—One-Act Comedy (Farémont); L'Honneur—Radio Comedy in One Act (Henri Picard); Le novateur—Comedy (Stoskopf). **9.0,** Orchestral Concert of Jazz Music, conducted by Roskam. **10.0,** Wagner Concert on Gramophone Records: Overture, Lohengrin; Selection from Lohengrin; Selection from Tristan und Isolde; Prelude and Death of Isolde. **11.0** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.—12.30 p.m.,** Concert from **Langenberg. 1.30,** Time, News, Weather and Programme Announcements. **1.45,** Italian Tenors on Gramophone Records. **2.30,** See **Frankfurt. 3.30,** Accordion Concert of Light Music. **4.0** (from **Freiburg**), Orchestral Concert of Operetta Music: Overture, Girofle-Girofla (Lecocq); Selection from Boccaccio (Suppé); Operetta Potpourri, So schön wie's damals war (Ziehrer); Overture, Indigo (Joh. Strauss); Selection from The Gipsy Baron (Joh. Strauss). **5.0,** Time and Sports Notes. **5.15,** Talk: Richard Wagner and Friedrich Nietzsche. **5.40** (from **Freiburg**). Songs and Dances in a Quiet Valley in the Black Forest—a Radio Report. **6.15,** Time, News and Weather. **6.30,** Spring in the Time of our Fathers—a Literary and Musical Sequence, arranged by Curt Elwenspoek and Gustav Görlich. **7.15,** Part Relay of an Operetta from **Frankfurt. 9.20,** Time, News, Weather and Programme Announcements. **9.45,** See **Munich. 11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. **5.30 p.m.,** Scènes pittoresques (Massenet) by a Symphony Orchestra. **5.45,** Light Music. **6.0,** Instrumental Solos. **6.15,** Racing Results and News Bulletin. **6.25,** Local News. **6.30,** Music by a Viennese Orchestra. **7.0,** Opera Music: Selection from (a) Aida (Verdi), (b) Norma (Bellini), (c) Faust (Gounod). **7.15,** Accordion Music. **7.30,** Programme of Balalaika Music and Russian Songs. **7.45,** Instrumental Solos: (a) Serenade (Gounod), (b) Extase (Gaune), (c) Rigaudon (Rameau). **8.0,** Concert; Part I, Extracts from The Mastersingers—Opera (Wagner); Part II, Opera Music; Part III, Military Music. **9.0,** Songs from Sound Films. **9.15,** North African News. **9.30,** Concert for Listeners in Morocco: Invitation to the Waltz (Weber); Air from La Bohème (Puccini); Melody (Kromberger); Parlez-moi d'amour (Lenoir); Melody (Carrara); Le Trap (Mougeot). **10.0,** Popular Concert. **10.30** to **11.0,** Programme in English by the I.B.C. W. Brown-Constable announcing. **10.35,** Organ Recital: Popular Irish Melody; Sunshine Susie; You are my Heart's Delight; Close your Eyes; I bring a Love Song; Londonderry Air; When it's Night Time in Nevada; Goodnight Sweetheart. **10.55,** I.B.C. Goodnight Melody. **11.0,** News, Weather, and Announcements. **11.5,** Operetta Music. **11.15,** Orchestral Music. **11.39** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**6.50 p.m.,** Pizzetti Violin Recital by Magda Gusberti, with Explanatory Notes by Ettore Sigon, followed by Programme from **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 899 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.—6.0 p.m.,** Time Signal and Gramophone Records. **6.20,** Giornale Radio. **6.45,** Tourist Talk and Giornale Radio. **7.0,** Announcements, Giornale Radio, Weather, and Gramophone Records. **7.30,** Talk: Events and Problems. **7.45,** The Duchess of Hollywood—Operetta in Three Acts (Renzato and Lombardo). In the intervals, Review of New Books and Miscellaneous Notes. After the Operetta (**Florence** only), Dance Music from the Chez moi Rajon. **10.30** (approx.), Close Down.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and **5.969 kc/s, 50.26 metres (Evening); 10 kW—10.9 to 10.15 a.m.,** Religious Announcements in Various Languages. **7.0 to 7.15 p.m.,** Religious Information in Italian

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,148 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.—4.30 p.m.,** Concert by the Heinz Morawetz Orchestra: Overture, Venus auf Erden (Lincke); Waltz, Märchen aus Wien (Romstorfer); Selection from Die Fledermaus (Joh. Strauss); Song from Eine göttliche Nacht (Dostal); Selection from Der Rastelbinder (Lehár); Waltz, Wiener Blut (Joh. Strauss); Potpourri, Mein Wien (Morawetz); March, Steirerblut (Konrad). **5.50,** Topical Talk. **6.15,** The Master. **6.20,** Time, Weather, Sports Notes and Programme Announcements. **6.30,** Concert of Hungarian Songs, relayed from the Musikvereinssaal. **7.0,** Recital on Two Pianofortes by Emerich Spielmann and Georg Jolk: Largo from Xerxes (Händel); Andante from the Violin Concerto (Mendelssohn); Three Bohemian Dances (Novak). **7.35,** Violin Recital by Ludwig Wittels: Selection from (a) The Bartered Bride (Smetana-Ondricek), (b) Schwanda the Piper (Weinberger-Wittels). **8.0,** Relay of an Opera from **Italy.** In an interval, News, Weather, and Announcements.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**10.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **11.5,** Programme Announcements. **11.10,** Light Music on Gramophone Records. **12.10 p.m.,** Weather Forecast. **12.15,** Programme for Schools, relayed from **Lwow, 788 kc/s (381 metres). 12.55 to 2.10,** Interval. **2.10,** Announcements. **2.15,** Economic Notes. **2.25,** Military Correspondence. **2.35,** Programme for Children. **3.0,** Light Music on Gramophone Records. **3.20,** Talk on History. **3.40,** Talk on the Economist, Bertrand Russell, relayed from **Lwow. 4.0,** Programme for Invalids, relayed from **Lwow. 4.30,** Announcements. **4.35,** Topical Talk. **4.55,** Programme Announcements. **5.0,** Biological Talk. **5.20,** Talk on Current Events. **5.25,** Light Music, relayed from the Café Italia. **6.0,** Miscellaneous Items. **6.20,** Agricultural Report. **6.30,** Topical Talk. **6.45,** Radio Journal. **7.0,** Concert of Light Music by the Station Orchestra, conducted by S. Navrot: Soloists: Mme. Terné (Songs) and L. Budnicki (Mouth Organ). **7.55,** Sports Talk. **8.0,** Radio Journal. **8.5,** Concert of Light Music (contd.). **9.5,** Chopin Pianoforte Recital by Alexandre Michalovski. **9.40,** Talk: The Zoological Gardens in Spring. **9.55,** Weather Forecast and Police Notes. **10.0,** Dance Music. In the Interval: News for Members of the Polish Polar Expedition.

ZURICH.—See **Schweizerischer Landessender.**

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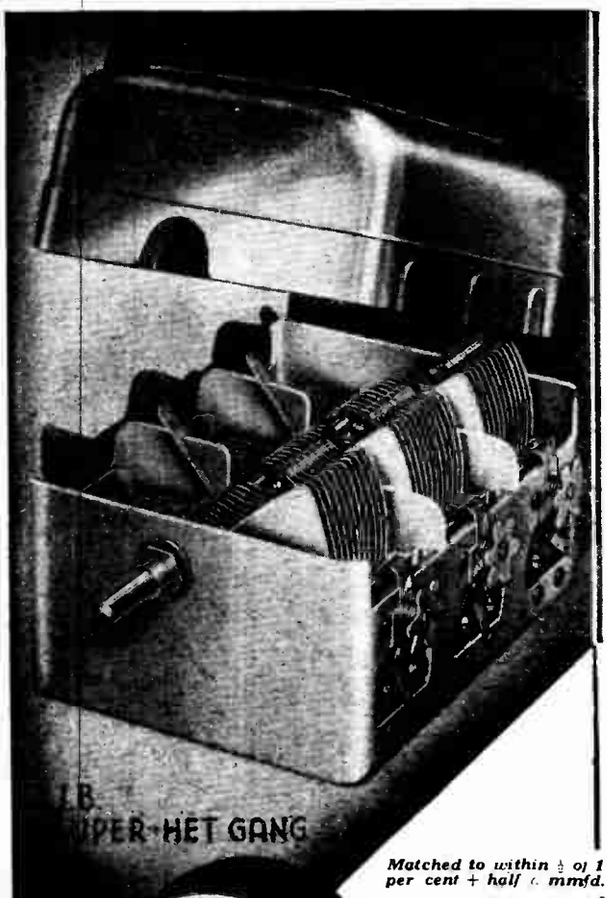

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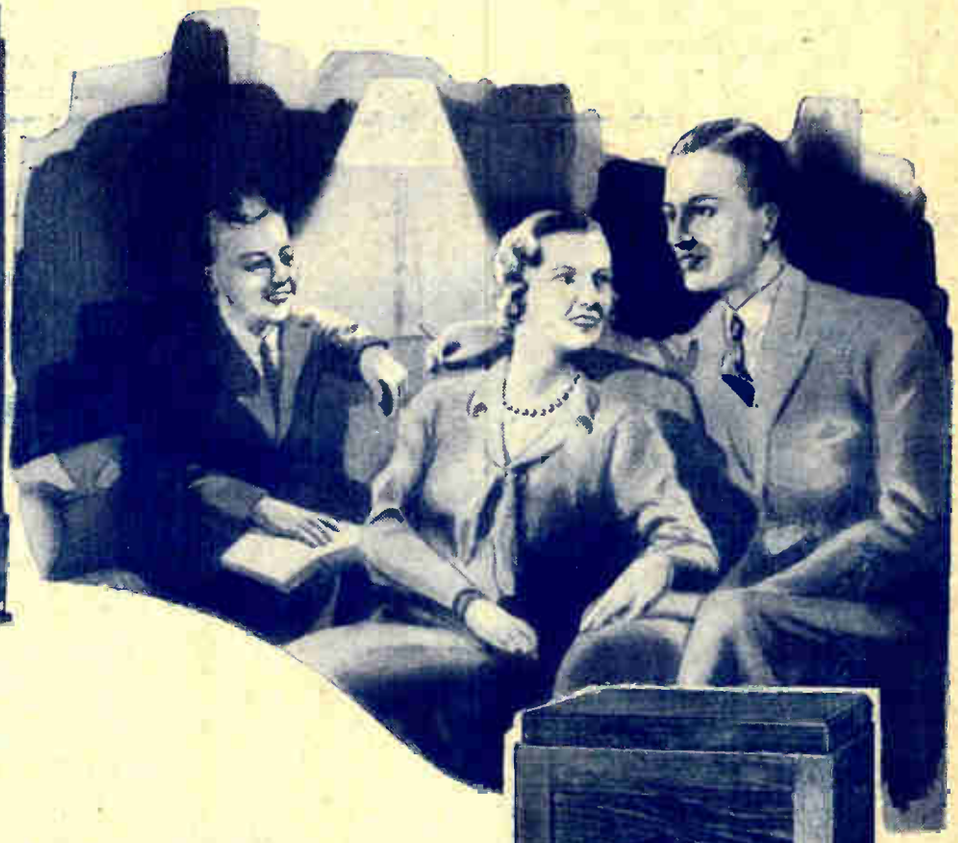

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